University of Alberta

Measuring the Effects of Alternative Agricultural Methods and Fair Trade Practices on the Development of Producer Groups and Their Members in Northern Thailand

by

Miriam Elizabeth Renner ©

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfilment of the requirements of Master of Science

in

Agricultural Economics

Department of Rural Economy

Edmonton, Alberta

Fall 1998

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled *Measuring the Effects of Alternative Agricultural Methods and Fair Trade Practices on the Development of Producer Groups and Their Members in Northern Thailand* submitted by *Miriam Elizabeth Renner* in partial fulfilment of the requirements for the degree of Master of Science.

Dr. W. A. Adamowicz (Supervisor)

Dr. T. A. Veeman (Committee Chair & Examining)

Dr. S. A. Niessen (Committee Member)

15th June 1998
Date

ABSTRACT

This study examines the economic, social and environmental effects of alternative agriculture, traded through fair trade, on Thai producers. These effects are compared with those of conventional and mixed agriculture.

The research areas were the government project at Village Three, Pong Yang, and the non-governmental organisations project at San Pay Yang and San Lueng. The organisations involved are outlined, including labelling and certification issues.

Economic comparisons found alternative agriculture was a viable alternative to conventional and mixed agriculture when non-farm income and home consumption were included. However, the larger average size of alternative farms and the external funding of the organisations involved must be considered.

Social comparisons indicated that alternative agriculture results in educational and health benefits, compared to conventional agriculture. Environmental comparisons showed that on average alternative agriculture is the most integrated, with the lowest number of artificial agricultural inputs used, and the highest number of their alternatives applied.

ACKNOWLEDGEMENTS

Many thanks go to Dr. W. Adamowicz for all his support and understanding, to Dr. S. A. Niessen for her encouragement and insights and to Dr. T. A. Veeman for his suggestions. Thanks go to all those in Rural Economy, for their friendship and help.

Thank-you to all those who helped and befriended me during my data collection in Thailand. Kob khun mak ca Dr. V. Punyawadee and Somkid Keawtip for having a genuine interest in my research. Bodee, Pa and Puk were not only invaluable interviewers, but also kind, caring and fun friends. I enjoyed data collection with them and with Mr. P. Boonee who was a patient and safe driver. Thank-you Ms. Diana Jantakad, Miss Juanita, Miss Nanako and Mr. Mark for being great friends, excellent teachers and my best kanom eating companions.

I am very grateful to the Canadian International Development Agency and the University of Alberta for the financial support they gave me during my Masters program. Special thanks go to Dr. D. Gill and Dr. Songvut for their roles in the CIDA-Supported, "Human Resources Development for Sustainable Agroforesty and Environmental Conservation in Northern Thailand", an institutional linkage project between Maejo University, Thailand and the University of Alberta, Canada.

Love and thanks go to my family and friends for supporting me in whatever I do, wherever I go.

Biggest thanks go to God, for carrying me through the whole experience, and for blessing me in so many ways.

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DEFINITIONS & ABBREVIATIONS

AA	Alternative Agriculture
AAN	Alternative Agriculture Network
ACT	Alternative Agriculture Certification in Thailand
ATO	Alternative Trading Organisation
CA	Conventional Agriculture
DC	Developed Country
ETL	Economic Threshold Level
FEDRA	Foundation of Education and Development in Rural Areas
GDP	Gross Domestic Product
GNP	Gross National Product
GO	Government Organisation
HDI	Human Development Indicator
HYV	High Yielding Varieties
IFAT	International Federation of Alternative Trade
IFOAM	International Federation of the Organic Agriculture Movement
IPM	Integrated Pest Management
LDC	Less Developed Country, used interchangeably with Third World country
MA	Mixed Agriculture (a farm where AA and CA are both practised)
NESDB	National Economic and Social Development Board (of Thailand)
NGO	Non-governmental organisation
NIE	Newly Industrialised Economy
SA	Social Auditing
SRE	Socially Responsible Enterprises
TNC	Transnational Corporation
WHO	World Health Organisation

Chapter 1: Introduction

1.1 Background of the Study

This thesis examines the private and social benefits and costs of adopting alternative agriculture in northern Thailand. Particular emphasis is placed on groups that also implement fair trade principles. The research focuses on the development[1] of such producers. Brief definitions of alternative agriculture and fair trade are given below.

Alternative agriculture focuses on soil regeneration, elimination of artificial inputs, development of biodiversity, and humane animal husbandry techniques (Panyakul, 1996). It arose as a response to the problems associated with the Green Revolution. The Green Revolution used artificial fertilisers and chemicals, new seed varieties, mechanisation and improved irrigation to increase yields. Unfortunately problems such as reduced biodiversity, increased input costs, health risks for appliers of the chemicals, etc. were some of the costs of the Green Revolution (Lianchamroon, 1991). Alternative agriculture attempts to overcome these problems, as well as focusing on other issues, such as the promotion of local, indigenous agricultural knowledge (Chamarik, 1995).

The overall aim of fair trade is associated with the development of small scale, and marginalised producers, especially in the Third World. Consumers, in both the First World and the Third World, help producers by buying their products through Alternative Trading Organisations (ATO). ATOs assure the consumers that the producers are getting a 'fair deal'. This 'fair deal' may be achieved in many different ways, including paying a higher price to producers for their products, thereby increasing their income.

In the case of fair trade alternative agricultural products, the consumers are also assured that the health of the farmers and their environment is a priority. Consumers further gain by obtaining the product and being educated about issues such as the marginalisation and inequities that occur through certain trading situations (if they choose to read the literature and labels of the ATOs).

---

[1] In this context development is human, sustainable and appropriate (detailed see section 2.3 for a more description).

1.2 Research Problem

Appraisals concerning the effects of alternative agricultural practices, using fair trade principles, on the development of the producers involved are carried out by many of the groups themselves and by many of the non-governmental organisations (NGOs), government organisations (GOs), and ATOs which work with them. However, an analysis that includes the economic, social and environmental effects of such production and trade practices on the chosen producer groups in northern Thailand is an academic expansion into this area.

A description of the extension and marketing approaches of the organisations involved in promoting AA is included, to increase the understanding of the situation. Marketing includes important labelling and certification issues.

The need for research that examines the interface between alternative agriculture, fair trade and development that is human, sustainable and appropriate is being increasingly realised by the likes of Transfair International (1995).

> As Zadek and Tiffen (1996, p 9) state, "there is a challenge to fair trade on environmental grounds from people who argue that any trade across long distances is contrary to the principles of sustainable development." They go on to suggest that there are "many environment-versus livelihood considerations" and that a "framework to assess 'competing' negative impacts does not yet exist."

Although such a framework has not been finalised within this thesis, some of the main issues involved have been highlighted, and suggestions for future research are outlined. However, it should be remembered that the use of full price costing may be a way that economics can include external and internal costs in such a way that trade can conform to the principles of sustainable development (Veeman, 1991).

1.3 The Objectives and Scope of the Research

This thesis explores alternative agriculture in northern Thailand, with a particular emphasis on groups who also practice fair trade principles. The main objectives are as follows:

(1) To describe some of the alternative agriculture and fair trade projects and extension and marketing initiatives that are currently underway in northern Thailand.

(2) To examine the effect of alternative agriculture, that uses fair trade principles, on the producers, in terms of economic, social and environmental changes to their lives.

(3) To provide an outline of the trade-off and possible synergy between the concepts and practical applications of alternative agriculture, fair trade and development that is human, sustainable and appropriate.

The fulfilment of the first and last objectives has entailed a literature search and informal interviews with those involved with fair trade and alternative agriculture in Northern Thailand.

To achieve the second objective a survey assessing the impacts of alternative agriculture practices and fair trade on farmers in northern Thailand was designed and implemented (see Appendix 1). This survey provides for quantitative and qualitative comparisons between farmers practising alternative agriculture and selling through fair trade mechanisms and those using other approaches. A brief description of the main hypotheses and *a priori* beliefs that were used for the economic, social and environmental comparisons follows. Definitions of the main economic, social and environmental issues in this context are also given.

1.3.1 Economic Comparisons

The economic focus is on the financial management of the different farming households. Total agricultural production, and that part of household production that is consumed by the farm household, are examined. Costs and income are also an important part of financial management, as net incomes must be maximised to achieve optimisation.

The following economic hypothesis will be tested: (AA = Alternative Agriculture, MA = Mixed Agriculture - farmers who practice both AA and CA, CA = Conventional Agriculture).

1. Net AA Income & home consumption of farm agricultural products >
   Net MA Income & home consumption of household farm products >
   Net CA Income & home consumption of household farm products.
2. AA Costs < MA Costs < CA Costs.

3. AA home consumption of household farm products >
MA home consumption of household farm products >
CA home consumption of household farm products.

Hypothesis 1 focuses on whether AA does in fact lead to higher net income. Hypothesis 2 examines whether the costs of AA are lower than those of MA and CA, which is expected given that a reduction in capital intensive inputs (such as artificial agricultural chemicals) is associated with AA. Costs may also be the only factor that the farmers can control, especially if output prices are volatile. Hypothesis 3 looks at whether AA farmers are more self-sufficient, due to their greater levels of home consumption of household farm products, compared to MA and CA farmers.

1.3.2 Social Comparisons

The social emphasis is on the interaction between the individual farmers and the extension and marketing organisations they are involved with, especially in terms of the new skills that the organisations teach the farmers. The welfare of the different farmers is also important. The health, safety and working conditions associated with the different types of agriculture help to explain the farmers', as well as the villagers', levels of well-being.

The *a priori* beliefs associated with the social effects of AA are:

1. AA extension information and new skills will be greater than those of CA.
2. Health, safety and working conditions in AA are better than those in CA.

1.3.3 Environmental Comparisons

The environmental focus is on the complex interaction of physical, biotic and chemical factors in the villages. It is assumed that more integrated farming will have a greater level of agricultural and non-agricultural biodiversity, which will in turn lead to a more balanced ecological system. The use of artificial chemicals and artificial fertilisers is thought to cause adverse environmental effects (Chantalakhana, 1995).

The *a priori* beliefs concerning the effects of AA on the environment are:

1. AA is more integrated, and therefore provides greater biodiversity, than MA and CA.
2. The use of artificial agricultural chemicals and artificial fertilisers in AA is lower than that of MA, which will be lower than that of CA.
3. Wildlife quantity and variety increases with AA practices, and decreases with CA.

1.4 Thesis Organisation

A background to fair trade and alternative agriculture is given in Chapter 2. This is followed by development thoughts that relate to fair trade and alternative agriculture. Finally, the importance of labelling and certification to fair trade and alternative agriculture is explained.

A perspective on Thailand is given in Chapter 3. The Thai economy is described. The fair trade and alternative agriculture situations in Thailand are then outlined.

In Chapter 4 the research methods and data collection are explained. A summary of the literature that is used to measure development and the concept of social auditing provided some theoretical background to the questionnaires. The choice of objectives, hypotheses and *a priori* beliefs, in relation to each other, and to the theoretical background, are explained. A brief description of the questionnaires are given. Finally, the selection of the study areas and the sample are outlined, with a description of the data collection.

Descriptions of the organisations involved in extension and marketing for the producer groups are provided in Chapter 5. This is followed by the economic, social and environmental data and results of the producer groups.

Chapter 6 includes the findings of the study, recommendations, limitations, implications for future research and concluding statements.

Chapter 2: Background

This chapter provides a background on fair trade, alternative agriculture, development and labelling and certification. It begins by providing a description of fair trade. The next section explains what alternative agriculture is. The third section provides a description of how marginalised people[1] can be helped through human development, sustainable development and appropriate development, of which fair trade and alternative agriculture are two examples. The final section in this chapter explains the importance of labelling and certification in terms of the production, marketing and consumption of fair trade and alternative agriculture.

2.1 Description of Fair Trade

2.1.1 Introduction

Some people are likely to be disadvantaged through trade by the income effects associated with specialization and the gains (or, in this case, losses to certain sectors) from international trade. Alternative or fair trade is expected to be a more ethical form of trade than the present system. As such, it aims to help poor people. One of the main problems, from an economic point of view, is that many of the attributes of fair trade products are difficult to quantify in economic terms. Ethical problems also arise when trying to decide what a 'fair' price is, as this is a very locally determined, relative and subjective decision. Even so, the overall aim of fair trade appears to be associated with the development of small scale, and disadvantaged producer groups, predominantly in the Third World.

2.1.2 Alternative Trading Organisations, Producers, and Consumers

Primary producers, particularly those in Less Developed Countries (LCDs), are often disadvantaged by international trade. An example is the escalating system of tariff rates and non-tariff barriers which Developed Countries (DCs) often apply to LDCs. They arguably act as unfair competition that can adversely effect the terms of trade of LDCs because of the increased supply of the same or substitute products in DCs. The problems of price instability and falling demand for raw materials, especially for those with low income and price demand elasticities, also exist (Brown, 1993).

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[1] Marginalised people are those who are economically, socially and/or politically disadvantaged, in such a way that it is very difficult for them to move out of their present state.

Fair trade allows consumers to help marginalised producers by buying their products through Alternative Trading Organisations (ATO). ATOs attempt to assure consumers that the producers are getting a 'fair deal'. This assurance can be achieved in many different ways, and is often shown visually by a label, mark, or logo (see section 2.4). This 'fair deal' is achieved through various policies. For example, ATOs usually pay a price, which is set above the market price, to the producers for their products, thereby increasing the producers' income. This higher producer price means that consumers must pay a price premium for fair trade products. ATOs may also commit themselves to ordering a certain quantity and paying a certain price for a product over a number of years, thereby helping the producers through stability and more accurate medium-term planning possibilities. Guaranteed advance payments from ATOs, when an order is placed, is another policy that can help producers, by alleviating credit and working capital problems. Some other policies that many ATOs support include, safe and healthy working conditions (Thompson & Freundlich, 1994) and production methods that reinforce the producers' cultural identity. However, it should be noted that the mandates of different ATOs sometimes vary in their choice and emphasis of objectives and policies. Even so, fair trade hopes to help the producers to have the financial ability to develop, and to become less economically marginalised, by paying a higher price for the producers' products; as such, it is a form of altruism. Altruism by the volunteers who work for ATOs, helps to reduce the ATOs labour costs (Hess, 1996).

2.1.3 Fair Trade, Education and Ethical Consumers

With fair trade, the consumers not only obtain the product, they also have the option to learn about the international trading situation. This includes learning about how small scale producers hold little bargaining power with which to insure decent working conditions, and prices that allow adequate profits with which to provide the basic needs for their survival and development. ATOs therefore wish to educate consumers and to influence their demand in a more ethical direction (Brown, 1993). The 'ethical consumer' is likely to become a significant force in purchasing and demand over the next few years

(Sylvester, 1992; Third World Information Network, 1994). Sylvester (1992) suggests that companies such as The Body Shop have proved that ethical policies can be economically viable.

2.1.4 Social Objectives

ATOs have further social objectives that include looking for, promoting and enhancing democratic producer groups and empowering women. ATOs are particularly happy if they and/or their profits enable Third World producers to pursue development, through projects such as building schools and improving health facilities (Hess, 1996; Yaquin, 1996). Producers also benefit from the increasing self-confidence and professionalism that ATO projects can bring, for example, by having been given the opportunity to learn more about the international market (Brown, 1993). (These social objectives are being tested by the social *a priori* beliefs (see section 1.3). The learning of new skills, and improvements in health, safety and working conditions are the focus of these *a priori* beliefs.)

2.1.5 ATOs - Non-Profit Organisations

ATOs differ from normal commercial traders as they do not seek to make a profit, only to cover their costs. If profits are made they are ploughed back into the producer groups and/or used to further the work of the ATOs. ATOs aim to pay the maximum price possible to the producers, while still offering consumers quality and reasonable prices. They also want to enable producers to add more value to their produce through further processing. They are often willing to provide credit to small-scale producer groups to help in production, processing and packaging, and to enable them to be free from the need to rely on middle people to buy their products. ATOs further help producers with co-ordination, storage, processing, transportation, communication, market information, etc., on an open and fair basis (Brown, 1993). It is also possible for commercial traders to be involved with fair trade if they practice the fair trade principles outlined above. If commercial traders do practice these principles they can be externally certified, and can then use the appropriate fair trade labels (see section 2.4 for further details).

2.1.6 Alternative Trading Networks

ATOs and their partners are most successful if they have mutually compatible aims and principles. Alternative trading networks are used to exchange information and ideas among different producer and consumer groups. They are based on the ideals of equality, fair exchange, mutual respect, the avoidance of corruption and reciprocal benefits. They have no direct centre and aim to link groups of people horizontally rather than vertically, and for compatible and complementary reasons. One example is the International Federation for Alternative Trade (IFAT) which exchanges information, co-ordinates trading arrangements, pools resources, and so on to its different ATO members (Brown, 1993). This approach differs from normal commercial trading companies who usually have vertical and hierarchical structures with a direct centre (Brown, 1993) and are orientated towards competition.

2.1.7 The History and Development of Fair Trade

Fair trade originated in Europe and was the response of a few philanthropic Europeans to the abject poverty in LDCs that was the result of war, famine, natural disasters and the unfair trading policies between LDCs and DCs. These Europeans marketed and sold various hand-made goods from marginalised members of LDCs (Chilson and Chandler, 1997).

From this beginning fair trade has grown and in 1995 alternative trade recorded some US$400 million sales, and is growing at under 5 percent per annum (Leatherman, 1996). Fair trade products accounted for one thousandth of the imports into Developed Countries (DCs) from Less Developed Countries (LDCs) in 1994 (Adams, 1995). The fair trade market is therefore predominantly a niche market.

2.1.8 Examples of Fair Trade Products and Outlets

Many countries now have at least two or three aid agencies with the aims described above, and many of these agencies have charitable, religious and/or solidarity origins (Brown, 1993). Many of these agencies believe that selling products from poor producers (especially those in the Third World) could be of more lasting benefit to such producers than the emergency aid given when disasters occur. Such ATOs often provided the tools and/or markets for poor, marginalised producers and their products. The products include crafts, textiles, preserved fruits, honey, nuts, coffee, sugar and so on, and are usually distributed through mail order catalogues and special shops (for example, see Connections, 1996). Supermarkets in countries including Britain also sell fair trade products, and in particular 'Cafedirect' coffee and 'Clipper' teas (Yaquin, 1996), which are both labelled with the Fair Trade Mark. In the first year that 'Cafedirect' ground coffee was available in the UK it took 2.85 per cent of the market (Ransom, 1994). As such it is starting to take on the mainstream (Zadek and Tiffen, 1996).

2.1.9 Summary

The underlying aim of fair trade appears to be the development of the producer groups involved, and of the customers buying their products (in terms of increasing their understanding and awareness of development and international trade issues). Fair trade also seeks to provide a way that consumers and producers can challenge the inequalities of income and living conditions throughout the world through positive action and international trade. Alternative agricultural products are one example of the type of products that are sold by ATOs.

2.2 Description of Alternative Agriculture

2.2.1 Introduction

Alternative agriculture (AA) focuses on a reduction in the health and environmental hazards associated with conventional agriculture (CA). It also aims to improve natural resource stewardship, quality of life and to increase self-reliance.

2.2.2 Problems of Conventional Agriculture (CA)

Conventional agriculture (CA) is a type of agriculture that uses artificial chemical inputs, mechanisation, new seed varieties, and is often associated with monocropping and a reduction in the diversity of animals and crops on individual farms. The use of inputs that are produced outside of the farming unit means that conventional agriculture is often capital intensive and reliant on factors external to the farm. Although CA has led to an impressive increase in the world food supply, this type of agricultural development has also had negative effects on both the environment and human health; and the sustainability of such an approach is being increasingly questioned (Setboonsarng, 1995). Human health problems not only concern the consumer (in terms of the quality and safety of the food that they consume), but also the health and safety of the producers who apply agricultural chemicals (see Rola and Pingali, 1993 for further details). The environmental problems associated with CA include soil, air and water pollution, loss of biodiversity, soil degradation, etc.

2.2.3 The Approaches of Alternative Agriculture (AA)

The approaches of AA focus on environmental and human health issues. AA aims to overcome the problems of CA (some of which are mentioned in section 2.2.2). A large array of different techniques can be used to achieve the aims of AA. These include integrated farming, agroforestry, organic farming and/or crop rotations. These techniques can help to overcome the problem of loss of biodiversity that is present in CA, while also increasing soil fertility and stability (Panyakul, 1996), reducing risk (through diversification) and decreasing pest and disease outbreaks, if properly practised.

AA farmers often use natural alternatives to artificial chemicals. For example, organic fertilisers, including animal manure and crop residues, are possible natural alternatives to chemical fertilisers. The cost of such natural alternatives can be lower than that of artificial chemicals, and can therefore lead to lower input costs for farmers, as well as a reduction in environmental and health risks. By lowering costs, the prospects of escalating debt may also be lowered. Natural alternatives may be locally available (and are often available from the farmers' own farm); this can reduce problems of reliance on outside markets, and thereby increase self-reliance (Chamarik, 1994).

2.2.4 The Conversion from CA to AA

There is increasing evidence that more and more farmers around the world are converting from CA to AA. The speed at which farmers will adopt AA practices depends on economic opportunities, technology advances in AA, market demands for AA products and government policies (Setboonsarng, 1995). To justify a change from conventional to alternative farming practices profitability must be at least equal, or else there must be significant non-monetary benefits, including preservation of deteriorating soil resources (National Research Council, 1989).

The transition from CA to AA is often gradual. Some farmers convert a small area initially, and then increase the size of their AA area as they gain experience and competence in AA methods. After a farmer stops using artificial inputs on a piece of land it often takes two to three years until balance in the ecosystem is restored (Setboonsarng, 1995). During this transitional period yields and incomes are likely to be at their lowest, and some farmers may therefore return to CA.

2.2.5 The Development Thoughts Associated with Alternative Agriculture

The development thoughts behind AA vary. Some people believe that AA should be associated with a move towards increased self-reliance of the farmers and improvements in their quality of life (Chamarik, 1995). Others view AA as a niche market opportunity. Even so, AA is often associated with a focus on local wisdom, traditional farming practices and building on farmers' existing knowledge. AA is often viewed as being more in harmony with nature than CA. Appropriate methods and technologies, which are in keeping with the local community and environment, are seen to be important. Local farming techniques and tools can lead to increased self-reliance, and help to reduce the farm labour displacement that the mechanisation of CA has created. Many organisations involved in supporting alternative agriculturists organise farmer training, demonstrations, farm trials and field trips to model farms. Such organisations may also be involved with marketing and promoting AA.

2.2.6 The Marketing of Alternative Agriculture Products

The marketing of alternative agriculture products focuses on consumer concerns for their health, and concerns for the environment. Although few agricultural products have a higher chemical residue level than those permitted by the World Health Organisation (WHO) for allowable daily intake, some consumers are still sufficiently concerned that they will purchase and consume AA products. The demand for organic foods (produced without any artificial chemical inputs on land which contains no artificial chemical residues), pesticide-free food (where no chemical pesticides are used, but where chemical fertiliser use is permitted) and low-residue foods (where minimal quantities of artificial chemicals are used) is increasing (Nelson, 1991). Consumers are often willing to pay a price premium for such products, and they often rely on labels and certification schemes to inform them of which foods have the desired attributes (see section 2.4).

The market for AA products, like that for fair trade products, is a niche market, which is dominated by educated middle and upper-income consumers, both in developed and developing countries.

There is a debate as to whether consumer concerns about the use of artificial agricultural chemicals in food production are justified. On the one hand, the residue limits set by government and international bodies (such as the WHO) may be adequate safeguards. If this is the case then the advocates of AA are misleading consumers. On the other hand, the risks associated with artificial chemical residues in food are uncertain, and the combined effects of different chemicals are unknown. The possible pollution problems associated with the use of artificial chemicals may be a further concern.

2.2.7 Summary

AA can be seen as an approach to agricultural development that aims to overcome many of the problems associated with CA. It focuses on environmental and human health issues, as well as self-reliance and quality of life. There are many similarities and overlaps between AA and fair trade, and some AA products are sold through fair trade organisations.

2.3 Development - Fair Trade and Alternative Agriculture

2.3.1 Introduction

Poverty is often both a cause and an effect of environmental degradation (UNCED, 1993). Marginalised people are usually those most effected by these problems, but they have the least political and economic power with which to address them.

> The marginalization of vulnerable groups "is a symptom of a style of development that tends to neglect both human and environmental considerations" (World Commission on Environment and Development 1987, p 116). "It is a terrible irony that as formal development reaches more deeply into rain forests, deserts, and other isolated environments, it tends to destroy the only cultures that have proved able to thrive in these environments" (World Commission on Environment and Development, 1987, p 115).

The inverse of the formal development mentioned above is development that is human, sustainable and appropriate. This later type of development aims to reduce poverty, to improve the environment and to empower marginalised people through self-reliance. Fair trade and alternative agriculture are two examples of such development.

2.3.2 Human Development

The United Nations Development Programme (UNDP) definition of human development is both recognised, and has some similar concepts to the aims of fair trade and alternative agriculture.

> "- Equality of opportunity for all people in society.
> - Sustainability of such opportunities from one generation to the next.
> - Empowerment of people so that they participate in - and benefit from - development processes." (*Human Development Report* (UNDP, 1995, p 1)).

Streeten (1995) states six reasons why human development is important. First, it is an end in itself. Second, it will contribute to increased productivity. Third, it reduces population growth, through lower reproductivity. Fourth, it decreases environmental degradation. Fifth, it leads to greater social stability through an increasingly civil and democratic society. Finally, it increases political stability and therefore reduces civil disturbances.

2.3.3 Sustainable Development

Sustainable development involves the concepts of human development mentioned above, but also adds an environmental dimension. As such, it requires that the needs of the present should be achieved, without compromising those of the future (World Commission on the Environment and Development, 1987). Therefore the environment and natural resource base should be maintained or enhanced through the development process, productivity should be increased, and human utility should also increase (Asian Development Bank, 1991). Sustainable development should also be technologically appropriate, socially acceptable and economically viable (FAO, 1989). AA therefore aims to be an example of sustainable development.

The World Commission on the Environment and Development (1987) was the first, and most influential international report to link the concept of 'sustainable development' with the need for equitable exchange. Fair trade aims to link these two concepts, by selling environment-friendly products, such as AA foods, through more equitable trade exchanges.

2.3.4 Appropriate Development

Self-reliance and self-help, by empowering marginalised people, are two examples of development that is human and appropriate. Gandhi (see Iyer, 1987) and Schumacher (1973) are two of the best known advocates of self-reliance. Schumacher's framework for development would rely on local resources, be compatible with peoples' values and culture, be decentralised, place human needs first, limit the use of non-renewable natural resources, and support the design of "appropriate" technology (Nozick, 1992).

> "A community-based development strategy could help the poorest, most disadvantaged and dependent communities toward becoming self-sufficient, self-sustaining and self-determining" (Nozick, 1992, p 34).

Projects which first promote appropriate and sustainable community based development, sometimes choose to only encourage trade in their production after local consumption needs have been fulfilled. In other words, self-sufficiency is the first aim, and trade is secondary to this. This is because increases in inequitable trade may further marginalise vulnerable people. However, trade may help to raise the production and consumption level of communities through the income effects of specialization and the gains from trade.

Appropriate development requires that the needs of local people and the environment are foremost in the design and implementation of all development projects and policies. Fair trade and alternative agriculture both attempt to achieve appropriate technology, by utilising, promoting and enhancing the local production processes, the knowledge and culture of the local people, and the local environment.

2.3.5 Summary

Development that is human, sustainable and appropriate is an approach that could help marginalized people to increase their economic, social and political power, and therefore to develop, and so become less marginalized. Fair trade and alternative agriculture may be examples of such development approaches. This thesis attempts to examine whether this is the case in northern Thailand.

2.4 The Importance of Labelling and Certification

2.4.1 Introduction

This section examines the importance of labelling and certifying for fair trade and alternative agriculture products. The effects of labelling and certification in terms of consumers, primary producers and 'traders', are also examined.

2.4.2 What is Certification?

Certification involves the act of certifying something with certainty and assurance (Thatcher & McQueen, 1980). In the case of fair trade certification, economic, social and environmental criteria are used. However, alternative agriculture certification places a stronger emphasis on environmental criteria. Problems arise in both alternative agriculture and fair trade certification schemes, due to different criteria being relevant to different settings. Certification schemes that stand up to the rigors of many different situations, but which continue to provide the necessary assurances, are very hard to establish.

2.4.3 What is Labelling?

Labelling is related to certification. A label shows that a product or management process has been certified. There are many different examples of AA and fair trade labelling schemes. As with all labelling claims, it is vital that consumers understand and trust the labels, and that they are validated, if appropriate, by the likes of the 'Ethical Consumer' magazine (Ethical Consumer Research Association, quarterly).

> As Sylvester (1992, p 17) suggests; "ethical trading standards are sometimes difficult to enforce".

2.4.4 Current Labelling and Certification Schemes

Fair trade and alternative agriculture labelling and certification schemes are, in part, a response to the growing numbers of ethical and environmental consumers who want more detailed information regarding the effects that their purchasing behaviour has on people, and the environment.

The use of fair trade and alternative agriculture labels and certification schemes enables such products to move from specialist shops and/or catalogues, into mainstream retail outlets, such as supermarkets. The use of a recognised label and certification scheme also helps to create a more unified marketing and publicity approach.

The current fair trade certification schemes all occur within the private sector. However, alternative agriculture certification schemes occur in both the private and the public sector. Such schemes are not only becoming increasingly recognised within Developed Countries (DCs), but also within Less Developed Countries (LDCs). In both cases, such products are directed at niche markets of middle and upper class shoppers. This is particularly so within LDCs.

2.4.5 The Chain of Custody

The 'chain of custody' is an important aspect of both fair trade and alternative agriculture labelling and certification schemes. It is the path, starting at the raw material, and following through the production, transportation, marketing and retailing activities, and finishing with the purchasing of the final product by the consumer. With the increasing globalisation of trade, and the rising complexity of the chain of custody, it becomes more difficult to follow a raw material, and then product, through the various companies and countries that it is likely to pass through. When a product or management practice is labelled or certified as having a different set of attributes compared to those of competing products or management practices, it is vital that the consumer be assured that such differences really do occur. This is especially true in the cases of fair trade and alternative agriculture, when the differences are often neither visible nor testable at the consumer end of the chain of custody. Obviously as the chain of custody of a product becomes increasingly complex, the policing of certification and labelling schemes becomes more difficult. It is vital that the consumer of the final product be able to trust the different links in the chain, as well as the body that certifies and/or labels the product or management practice.

2.4.6 Consumer Responses to Labelling and Certification

Consumers must be able to differentiate between labelled and certified products and non-labelled and non-certified items in a cost-effective manner. Certifiers must be honest and trusted by consumers, if the risk of miscertification (which is likely to lead to cynicism on the part of the consumers, and therefore to a fall in the sales of certified products) is to be reduced. For simplicity, promotion and customer convenience, it is likely that a limited number of different labelling and certification schemes would be more successful than a myriad of different schemes.

The price premium that is paid for fair trade and alternative agriculture products by some consumers shows that they obviously believe the labelling and certification claims, and adapt their purchasing behaviour correspondingly. For example, the Organisation of Economic Co-operation and Development (OECD) found that some consumers were willing to pay a premium for environment-friendly goods, and that environmental labels can be used to effectively stimulate latent consumer concern in some product categories (OECD, 1991).

The prediction of consumer behaviour is complicated by the possibility of dynamic consumer preferences that may be a result of awareness raising through labelling, certification and marketing (Kiker and Putz, 1997). The possibility of product substitution[1] is also an important and complex issue.

2.4.7 Producers' Responses to Labelling and Certification

The chain of custody was described above. For reasons of simplicity, in the following section, the 'producer' includes any part of the chain of custody except the final consumer. The 'primary producer' is used to describe the person or people who make the actual product. 'Traders' will be used to define the organisations that are responsible for the transportation, packaging and marketing of the final product. It will be assumed that traders are responsible for obtaining certification of the product (or management practice), and the associated labelling. It is also assumed that the primary producers receive a price premium from the traders with whom they trade, and that the traders receive a price premium, which consumers are willing to pay, for the special attributes associated with labelled and/or certified products.

2.4.8 Is There A Price Premium?

There are various different opinions of what a price premium for certified products actually means for the producer. These perspectives range from the existence of a higher producer price for certified, versus non-certified products, to the belief that certification may benefit the producer in terms of lower production costs. It may allow a producer to maintain, or increase their market share. In the case of fair trade and alternative agriculture labelling the author's observations indicate that a price premium usually occurs, as the price of virtually all such labelled products is above that of their non-labelled equivalents. When a price premium does exist the risk of arbitrage, copy-cat products, and misleading labelling and certification schemes by competitors is likely to arise.

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[1] Product substitution occurs when consumers replace the original product with a substitute. Substitutes are; "Rival or competing goods that can be interchanged for one another, since they have the same uses or yield similar satisfaction." (Crane, 1980, p 324).

2.4.9 Costs versus Benefits

The fact that many of the traders involved with alternative agriculture and particularly fair trade, are non-profit organisations changes the usual cost versus benefits, and dual optimisation (maximum profits, and minimum costs) that are associated with economics, and further complicates the predictions of producer behaviour. Even so, if the costs of labelling and/or certifying a product outweighs the benefits of such initiatives, then it is unlikely that additional primary producers and traders will implement fair trade and alternative agriculture practices. If the opposite scenario occurs, then the number of labelled and certified products on the market is likely to increase, and there may be an associated risk of over supply. Different conventional products, and different conventional producers must compare the costs of adapting to fair trade and alternative agriculture practices, to the benefits that they will receive, to decide how they will respond. If ethical and environmental goods increase their market share, it may become increasingly important for conventional producers to change their practices, if they are to maintain their access to the market (Haener, 1997). Problems of policing numerous different ethical and environmental products would be likely to arise, if they are not already present.

The benefits that traders receive from ethical certification, environmental certification, and labelling include acceptance by new clients and improved consumer confidence (Hopkins and Straughan, 1995). The costs to the traders that are associated with ethical and environmental certification and/or labelling mainly involve the payment of the price premium to the primary producers. The traders must also check that the necessary principles, production process and management practices are being adhered to by the primary producers. The cost of having the products and/or management practices independently verified, and the actual cost of labelling should be passed on to the consumer (Independent Monitoring Working Group, 1996).

The costs to the primary producers are those associated with meeting the standards required by the traders. Presumably the benefits (particularly in terms of the price premium, improved working condition and increased knowledge and training) outweigh the costs for the primary producers, otherwise they would not be involved in alternative agriculture and fair trade.

2.4.10 Information Asymmetry

Information asymmetry is experienced by small-scale and large-scale producers (for example, in terms of differing knowledge of the various market openings for their products), and also by consumers who may not be well informed about the different trading, labour, and environmental attributes of products from different sources. Labelling and certifying a product can eliminate information asymmetry (Akerlof, 1970), and therefore allow consumers to decide whether they want to buy products from more ethical and environmental sources, or not. Many of the attributes of fair trade and alternative agriculture products may be non-marketed (for example, the benefit of ensuring that the working conditions of the producers are safe). Certification and labelling provide a means of including such non-market values within the market, even if they appear as a form of altruism. Whether these non-market values are under-internalised, optimised, or over-internalised remains to be seen.

Certification and labelling must be both accurate and efficient, if they are to reduce the market failures that result from trade and to overcome information asymmetry. Products with different ethical and environmental attributes must therefore be categorised correctly. However, as Haener (1997) argues, if certification can internalise the inefficiencies that are the result of market failure, then a net welfare gain can be achieved.

2.4.11 Ethical Businesses and their Marketing

The 'ethical business' movement combines the environmental, feminist, human-rights activism and anti-war currents of the 1960s with narcissism (Entine, 1995), along with many other issues. Ethical marketing has focused on integrity and idealism that often simplifies the complexity of business, and it should therefore be viewed with caution

(Entine, 1995). It should not just involve idealistic claims and rhetoric, but also business transparency, a responsible approach towards the environment, an ethical and fair attitude towards employees, suppliers, consumers and the community, and the promotion of reasonably priced, quality products or services (Entine, 1995).

2.4.12 Summary

This section has shown that the effects of labelling and/or certifying products are complex, and often uncertain. Even so, certification and labelling can be used as successful marketing tools, as well as being used to improve management practices. Care must be taken to ensure that labelling claims are accurate, and trusted by stakeholders and especially consumers.

If the benefits of certification and/or labelling outweigh the costs, then it is likely that the number of certified and labelled products on the market will increase. The effects of such an increase are unclear.

The next chapter provides examples of fair trade and AA certification and labelling in Thailand.

Chapter 3: Perspective on Thailand

The first section of this chapter provides a brief summary of the history of modernisation in Thailand, and the associated problems. The next two sections describe some of the fair trade, and then alternative agriculture initiatives that attempt to overcome these problems.

3.1 The Thai Economy

3.1.1 The Modernising Thai Economy

In Thailand, the process of industrialisation began nearly 40 years ago when the Thai government started to change the infrastructure in a bid to help the country modernise. In the 1970s the obvious limits of a small domestic market led the government to implement export oriented policies, high tariffs on consumer goods and domestic content requirements for manufacturing. Elsewhere in the economy the government became less interventionist as energy prices were allowed to rise to world levels. Domestic interest rate controls, export taxes and import restrictions were all reduced. Although the economy continued to expand, the deficit remained a problem, which was worsened by tax exemptions and continued overestimation of expected government revenues.

In the 1980s, and particularly after the 1984 currency devaluation, the central government balance rapidly improved as expected revenues were underestimated (in a response to the previous over-estimations) thus improving government expenditure planning. The growing economy also helped by increasing the tax base.

Thailand achieved rapid levels of economic growth in the 1980s and early 1990s, with annual GNP growth averaging approximately eight percent. Recently the Thai economy has suffered from political instability and incompetence. Examples of incompetence include the economic mismanagement of the previous Chavalit government (Terdudomtham, 1998). Terdudomtham (1997) believes that these, along with tight monetary policy, led to the poor economic performance and zero export growth which Thailand experienced in 1996.

In 1997 the Thai political and economic situation worsened further; the bubble of a decade of economic boom, corruption and over consumption finally burst (The Economist, 1997a). On 2 July 1997 the Thai baht was allowed to float and by November 1997 its value had fallen by about 40 per cent (The Economist, 1997b). International Monetary Fund (IMF) austerity measures were implemented to solve the problem of national insolvency on 5 August 1997. Economic growth in Thailand is now predicted to be much slower. Unemployment in urban areas is increasing, tax rates have risen, government spending has been cut, and incidences of poverty are likely to rise (The Economist, 1997c).

3.1.2 The Problems Associated with Modernisation

The rapid changes that have been associated with modernisation in Thailand have not all been positive. For example, the Gini coefficients show that the inequality of income distribution in Thailand has increased from 1961-1988 (Krongkaew, 1993). Kulick and Wilson (1996) counteract this growing income polarisation by explaining that many of the poor are farmers who benefit from subsistence food production and the lower cost of living in the countryside. Therefore their relative poverty is unlikely to be as bad as it first appears.

The vast majority of the modernisation of Thailand has occurred within just one generation. Traditional lifestyles have changed rapidly as urban migration, land hunger, increasing access to media, etc., have affected the traditional culture and family relationships. Social problems, such as crime, child abuse, prostitution and city slums are all increasing (Wasi, 1994).

The main environmental problems that have resulted from rapid modernisation include natural resource depletion and pollution (Hirsch, 1996). Forest depletion has occurred because of both logging and land hunger. Dam building and mining have left scars on the landscape. As the natural resource base in Thailand has been diminished, Thais have started turning to their poorer neighbours for timber, energy, mineral and water resources. Competition among the different sectors of the economy for scarce resources has intensified as urban populations, industry and tourism have expanded.

Traffic congestion, poorly regulated construction, and pollution from domestic, industrial, agricultural and tourist sectors have caused adverse effects.

3.2 An Overview of Fair Trade in Thailand

3.2.1 General Fair Trade

Fair trade in Thailand attempts to overcome some of the adverse effects resulting from the modernisation of Thailand. There are a number of different Thai Alternative Trading Organisations (ATOs) including Thaicraft, the Y. Development Corporation, Thai Tribal Crafts and Green Net. Many of these groups are involved in alternative trading networks that enable them to sell crafts, fabrics or food products to both domestic and international markets. Western ATOs, including Bridgehead and Ten Thousand Villages sell Thai craft and food products to Western consumers using mail order catalogues (such as the Bridgehead 1995-6 Gift Catalogue), specialised stores and so on. These Western ATOs will usually use their own labelling and certification schemes, but are likely to provide educational information about the producer and Thai ATO/s involved in the production and marketing of the fairly traded good. Thai ATOs also sell fair trade Thai crafts and food to Thai consumers, usually through specialised retail outlets. Fair trade products that are domestically sold are not always labelled, and certified. For further information regarding fair trade craft products in Thailand, please refer to Niessen (1996a) for details of wood-based crafts, and LWDP/WAYANG (1995) for details of weaving.

3.2.2 Fairly Traded Alternative Agricultural Products

The production and marketing of fair trade AA products in Thailand is less established than the craft equivalent. The market is dominated by domestic consumption, and the products are sold through a wide range of different retail outlets, some using certification and labelling schemes. These include health food shops, ATO shops, local, regional and national markets, and special "Green Corners" in Lemon Green shops - which are modern convenience stores located at Bangjak petroleum stations (Panyakul, 1995a). Very few AA products are currently being exported. One example of the Thai export of fairly traded AA produce is AA rice from Surin (in the Northeast) which is exported through Green Net to the Swiss ATO OS3.

The issue of labelling and certification is particularly important for AA products that are also fairly traded. Not only does the product need to be certified and labelled as fairly traded it must be recognised as being from an alternative agricultural source. When such products are exported these labelling and certification schemes must be internationally recognised.

3.3 An Overview of Alternative Agriculture in Thailand

3.3.1 The Green Revolution and its Impacts

Thailand, like many countries in the Third World, benefited from the increasing per capita food production associated with the green revolution. The green revolution combined high-yielding varieties, fertilisers, pesticides, irrigation and further technical innovations (Conway and Barbier 1990). The new technologies of the green revolution, and the government supported forest clearance that created more agricultural land, enabled Thailand to feed its rapidly growing population.

From the 1960s onwards, the Thai government also encouraged large-scale agriculture, agro-industries for export and contract farming (Phongpaichit & Baker, 1997). Thai agriculture therefore moved from an emphasis on domestic consumption with rice exports, to cash crop, export-orientated farming. This move led to an increasing dependence on imported inputs and capital-intensive methods.

The impacts of agricultural development in Thailand have been varied. On the one hand agriculture contributed 27 percent to Thailand's GDP in 1970 (Phongpaichait & Baker, 1997). Agriculture now accounts for approximately 10 percent of GDP, this is still significant, especially when the structural change associated with industrialisation and a growing service sector are considered. Thailand's growing population has also benefited from the increasing agricultural output, at least in the short-term. However, Thailand's land, forests and water resources have been degraded. Human health and society have also suffered (Ekachai, 1994).

Intensive monocropping and inappropriate farming techniques have caused depletion of soil nutrients, soil erosion, salinity and soil exhaustion problems (Tantemsapya, 1996). Forest encroachment and deforestation have increased land for agriculture, but have also led to drought, floods, loss of vegetation and biodiversity

(Tantemsapya, 1996). Soil erosion has caused rivers and canals to silt up. Pesticides and fertilisers now pollute the water, air and soil. Fertiliser run-off has also caused eutrophication of surface water, which has had a negative impact on aquatic biological diversity. Competition for scarce water supplies has increased as agriculture, industry, domestic and tourist users increase their demands (Wytinck, 1997).

The negative impacts of agricultural development on human health have increased. The increasing use of agricultural chemicals and fertilisers has been associated with an increase in associated human illness and death. Formulated pesticide supply increased from 26,996 tons in 1981 to 67,969 tons in 1990 (Office of Agricultural Economics 1992). Agricultural consumption of chemical fertilisers increased from 1,042,503 tons in 1982 (Office of Agricultural Economics, 1992) to 3,313,313 tons in 1995 (Office of Agricultural Economics, 1997). Unfortunately, accurate figures of illness and death associated with agricultural chemical use in Thailand are not as easy to obtain as figures concerning the use of such products. The authors' observations of improper handling and inadequate protection by appliers of agricultural chemicals, as well as the suspicion that many poisoning cases are unrecorded, means that the human health problems associated with agricultural development in Thailand are probably far larger than public statistics indicate. However, Tantemsapya (1996) uses statistics obtained from the Epidemiology Division of The Ministry of Public Health that indicate that there were 518 illnesses and 18 deaths associated with pesticide poisoning in 1975, and this increased to 4,234 illnesses and 34 deaths in 1988.

The negative impacts on society resulting from agricultural development in Thailand include increasing income inequality, rising debt, increasing relative rural poverty incidences and the break down of the traditional family and village structures (Ekachai, 1994). Land right and land distribution inequalities are, in part, responsible for the widening rural income gaps. Rural poverty has been a result of many different factors. First, input costs have been rising (especially for imported inputs that have become more expensive due to the recent devaluation of the Thai baht). Second, risks and falling incomes are associated with the monocropping of cash crops. Both the previous factors have been partly responsible for the third factor, namely rising farm debts. The final factor is natural resource degradation and related natural disasters.

Rural poverty has provoked rural people, and especially the young, to migrate to urban areas in search of work. As rural migration increases families are divided and the traditional extended Thai family structure is breaking down.

As the Thai population increases, the number of land hungry rises and the environmental conditions become worse; farmers are increasingly encroaching on the forests, not only for forest products, but also in an attempt to obtain land. Many national parks and forest reserves are being illegally logged and/or farmed, and conflict between government, logging companies, agribusiness and local people is growing (Phongpaichit & Baker, 1997).

There have been other, more positive changes in Thailand since the introduction of the green revolution, for example agricultural production has increased, the overall number of incidences of poverty has decreased[1] (UNDP, 1997) and rural infrastructure and services have expanded (Phongpaichit & Baker, 1997).

3.3.2 Alternative Agriculture Approaches

AA attempts to overcome the problems associated with the green revolution and agricultural development in Thailand since the 1960s. Although AA was only practised by 0.4 percent of the national farming population in 1992 (Levin & Panyakul, 1995), it is becoming increasingly known throughout Thailand. Both government and non-governmental organisations (NGO) are currently involved in extension and marketing initiatives. There are a number of different AA approaches which are mentioned in the following five subsections. These different approaches can often be practised separately or in combination.

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[1] Although there has been an increase in the inequality of income distribution (Krongkaew, 1993), the proportion of people living below the poverty line has decreased (UNDP, 1997). However, factors such as gender, ethnic and regional differences, may help to indicate where poverty is most prevalent. For example Krongkaew (1993) explains that the poor remain clustered in rural areas.

3.3.3 Integrated Farming

Integrated farming usually comprises multi-cropping and often also includes livestock production. Multiple cropping can allow mutual interaction, help to control pests and disease, and reduce risk through diversification. Animals can provide food, income, draught power and manure. Fish are sometimes kept in ponds or irrigation canals, as a further source of biodiversity, food and income. Integrated farming can increase the efficiency of resource management, and decrease rural migration, but it requires sufficient land, capital and labour (Tantemsapya, 1996). Integrated farming combines traditional mixed farming methods and local wisdom, with innovative techniques. It usually leads to greater self-reliance (Chamarik, 1995).

3.3.4 Agroforestry

Agroforestry involves the intercropping of annual herbaceous crops with perennial trees and/or shrubs. Birds are attracted to certain trees and they act as a form of biological pest control (Tantemsapya, 1996). The trees contribute to biodiversity, enrich the soil, and help to prevent soil erosion and the associated nutrient loss, especially when practised in the highlands as an alternative to shifting cultivation. Lowland agroforestry also exists. Agroforests are both privately and communally owned. The latter are known as community forests, and can be a solution to the denudation of forest reserve areas, as well as to environmental crisis and rural impoverishment (Puntasen, 1996). Land rights are an important issue in many forest areas.

3.3.5 Organic Farming

Practitioners of organic farming believe that the use of agricultural chemicals seriously upsets the ecological equilibrium, therefore they must not be used. Intercropping, organic manures and biological and/or botanical pesticides are promoted and used as alternatives to agricultural chemicals. These alternatives eliminate the health and environmental problems associated with agricultural chemicals, as well as reducing costs and improving soil conditions. Variations of organic farming include pesticide-free farming - where chemical fertilisers are permitted, but other agricultural chemicals are not.

3.3.6 Natural Farming

Natural farming is possibly the least practised form of AA in Thailand. It was inspired by the book; "One Straw Revolution" (Fukuoka, 1978) and is based on the belief that there should be no ploughing, no weeding, no pesticides and no chemicals (Levin and Panyakul, 1995). Most farmers find this approach inappropriate for the tropical conditions in Thailand. Even so, a few NGOs and Santi Asoka (a Buddhist religious sect) are still promoting natural farming in some areas.

3.3.7 Integrated Pest Management and Pesticide-Safe Products

The previous four approaches to AA (outlined above) are usually promoted by NGOs. However, Integrated Pest Management (IPM) is the form of AA that is most promoted by the Thai government. IPM uses a combination of different techniques to control insect pests (Nanta, 1995). The population of insect pests and natural predators are continuously monitored at critical times. If an economic threshold level (ETL) is reached, whereby it would be more profitable to use artificial agricultural chemicals, than not, then they are applied. If the ETL is never reached, then artificial agricultural chemicals are not used. Obviously farmers must properly understand and apply this approach, and proper training is required. Certain other approaches, such as the use of nylon netting to reduce pests in horticulture, the use of alternatives to agricultural chemicals (see 3.3.5), and certain rules specifying when chemicals can and can not be applied are also promoted by the government. Some of the products produced by IPM farmers are labelled and certified as being 'chemical safe', and such products are monitored by government. The government has been criticised by NGOs for confusing the consumer with IPM and 'chemical safe' labelling, and not promoting genuine AA.

3.3.8 Alternative Agriculture Network

The Alternative Agriculture Network (AAN) consists of a loose, decentralised network of Thai NGOs involved in AA. In the North, Northeast, Lower North-Central and the South regional AAN networks have been established.

> The AAN network defines AA as; "agricultural production and peasant livelihood that contribute to the rehabilitation and maintenance of ecological balance and the environment, with just economic returns, promoting a better quality of life for farmers and the consumers, and fostering the development of local institutions for

the benefit and the survival of all human kind" (Panyakul, 1992, pp. 65-66, cited in Panyakul, 1993, p 183).

The AAN also believes that the local context is important, as is the issue of self-reliance. The AAN and its members are involved with organising farmer training, documenting technical issues, research and policy advocacy. Policy advocacy has not only meant that information has been disseminated to the public, academia and the press, but also that the concept of sustainable agriculture has been included in the Thai governments' Eighth National Economic and Social Development Plan (National Economic and Social Development Board, 1996. See section 5.5.3 for further details).

3.3.9 Alternative Agriculture Certification in Thailand (ACT)

Many of the NGOs in the AAN have their own certification and labelling schemes. However, nation wide standards and labels are being developed by the NGOs involved in the AAN (Panyakul, 1995a and 1995b). The proposed national labels are part of the Alternative Agriculture Certification in Thailand (ACT). The objectives of ACT are to provide assurance to consumers, to build confidence for the producers, to increase the quality of AA products, and to improve the health and environment of the agriculture system in Thailand (Lianjumrooh, 1996). Two types of labels are being developed. The primary certification label is for pesticide-free products, and it is expected that after three years producers will be able to move from this type of production and labelling to the secondary, organic certification label. It is proposed that farmers will pay a membership fee and be monitored biannually in order to obtain a license to use the ACT label/s (Lianjumrooh, 1996). The International Federation of Organic Agriculture Movements (IFOAM) has been involved with the development of the ACT (Panyakul, 1995a).

The present AA labels that are used by producers who are linked to NGOs are monitored by the NGOs involved and by government agencies. The prices of organic products that are sold through the alternative or fair trade market, using these labels, are 10-20% higher than those for conventional products (Panyakul, 1995a).

3.3.10 Bottlenecks in the Expansion of AA

Many farmers are reluctant to convert from CA to AA practices due to economic barriers, inadequate technical knowledge, cultural factors and market uncertainties (see

Levin and Panyakul, 1995 for further details), even though demand, especially from educated middle and upper-income consumers, is greater than supply for certain AA products. Consumers face problems of seasonal supply, inadequate and inconvenient retail outlets, limited choice and higher prices (Tantemsapya, 1996).

In theory, by reducing or eliminating the use of expensive chemical inputs, and replacing them with alternatives, such as herbs and manure, the costs should be lower (Prinz, 1997). Eventually the price of alternative agriculture produce should be comparable to the price of conventionally produced produce if yields are comparable (and some Thai consumers actually believe that consumers should pay less for AA produce). In practice the soil has been damaged and abused for a long time by chemical inputs, monoculture and erosion, so the AA produce take a longer time to grow, and the soil will usually take at least two to three years to recover from CA methods (Jeerawan, 1997). Pesticide use may have disrupted the biota, including natural predators (National Research Council, 1989). While the balance of the biota is regained farmers converting to AA may initially be very susceptible to insects and diseases. A further problem is the lack of appropriate seeds. Farmers often buy high yielding varieties (HYV) of seeds or seeds from conventional sources and grow them using AA methods that the seeds have not been bred for (Supawan, 1997). Although some farmers still grow traditional fruit and vegetables, it is very difficult to grow them out of season (LeClair, 1997), and when they are grown in season there is an over supply, so prices are low (Chumchuan, 1997). For all the reasons above and more, a higher price is usually necessary for AA products over CA products, if AA farmers are to be economically successful.

3.3.11 Summary

This chapter has shown that there have been many changes as a result of modernisation in Thailand. Not all of these changes have been positive. Fair trade and alternative agriculture are attempts to overcome some of the negative changes that have occurred. However, the effects of these approaches on the producers involved have not yet been fully explored. The following chapter describes how these effects were explored, and the research methods that were used.

Chapter 4: The Research Methods and Study Area

The first section of this chapter outlines the research methods that provided a background for the data collection. The second section provides the objectives and some of the reasons behind their choice. The next section describes the hypotheses, and *a priori* beliefs and how they relate to the final questionnaires (see Appendix 1). The fourth section describes how the study areas were selected. The final section describes the selection of the sample and data collection.

4.1 The Research Methods

4.1.1 Introduction

This section provides an outline of the research methods that were used to develop the questionnaires. These questionnaires were used to compare the economic, social and environmental effects of alternative agriculture and fair trade. These comparisons were achieved by gathering data to test the hypotheses and *a priori* beliefs (see section 4.2). Additional data were also required to give a broader picture of the farmers' development and the social responsibility of the companies they are involved with.

As was previously stated, fair trade and alternative agriculture appear to be predominantly concerned with their ability to enable small-scale, poor (and in this case, Third World) producers to develop (especially in a sustainable, human and appropriate manner - see section 2.1). Therefore it would appear to be worthwhile to outline some of the various approaches that have been used in the literature to measure development in the past. Widely recognised indicators of development, including Gross National Product, Gross Domestic Product, the Human Development Indicator and the quality of life indices, provided part of the theoretical background for the questionnaires. The Social Auditing approach and similar schemes that are used to assess Socially Responsible Enterprises (SREs) provided the other main research theory. Other background sources were also drawn on, including the craft interview questions of Niessen (1996b), producer guidelines from Alternative Trading Organisations (Selfhelp, 1990 and Bridge, 1996/97), economic evaluations of alternative agriculture (National Research Council, 1989 and Weinsang, 1996) and The Caracas Report on Alternative Development Indicators (1989). Groups of economic, environmental and social questions were chosen for the final questionnaire, under the assumption that a multidimensional approach is appropriate given the aims of fair trade and alternative agriculture.

4.1.2 Gross Domestic Product and Gross National Product

Gross Domestic Product (GDP)[1] and Gross National Product (GNP)[2] were devised to measure flows of money, but they have been assigned a second role as a measure of the total development and progress of a nation. Their second role is briefly critiqued below to provide thoughts on how development has been, and can be measured, and the problems that can arise. A third role for GNP has also arisen; where it has been applied as a measure of the pressure that is placed on the environment by the economy (Pearce, Markandya, and Barbier 1989).

GNP has many faults as an indicator of development. Unpaid domestic labour, such as housework, child-care, and in many developing countries agricultural labour, are excluded (Waring, 1988). GNP often understates the contribution of women, while overstating the rate of growth that occurs during industrialization. This is because industrialization is associated with a move from domestic production and subsistence agriculture to non-domestic production, and from bartering to monetary transactions. The existing stocks of human capital, human investment (e.g., in education and training) and human depreciation remain unmeasured. Unless GNP is appropriately adjusted, environmental assets and their depreciation are not accounted for. This means that the present global economic system marginalises and undervalues nature, women and non-westernized peoples as they are perceived to have no economic value or intrinsic intellectual worth (Shiva, 1988). This has often led to inappropriate and distorted policies, and environmental problems. Further social and equity problems are related to the fact that GNP ignores income distribution.

The criticisms of GNP that are outlined above can be partially corrected by the appropriate additions and subtractions to GNP. However theoretical, ideological and empirical problems are likely to arise.

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[1] GDP is 'the total value in money terms of all the production in a country in one year' (Anderson, 1991, p 19).

[2] GNP is GDP plus rents, interest, profits, and dividends flowing into a country from abroad, minus rents, interest, profits, and dividends flowing out to other countries (Anderson, 1991, p 19).

4.1.3 The Human Development Indicator

The Human Development Indicator (HDI) attempts to overcome some of the problems of GNP and GDP by including a longevity variable and a knowledge variable, as well as an income variable. The longevity variable is measured in terms of life expectancy at birth. The knowledge variable is measured by combining adult literacy (two-thirds weight) and combined primary, secondary and tertiary enrolment ratios (one-third weight). The income, or standard of living variable, is measured by real GDP per capita adjusted by purchasing power parities and measured in US dollars (PPP$). GDP (PPP$) is discounted using formulas for the utility of income and the discounted value of the maximum income.

Problems with the HDI as a measure of development include the use of arbitrary weights and an arbitrary choice of variables (Streeten, 1995). The choice of dimensions has also been criticized as political freedom, cultural values, gender, distributional and environmental sustainability dimensions are excluded. The problems associated with the use of a single indicator to analyze such a complex problem is also apparent, because human development is much wider, deeper and richer than a single measure can ever be (Streeten, 1995).

4.1.4 The Quality of Life Indices

The 'quality of life' indices are a set of indices that can be used to measure development. They can be approached from different levels. Modestly ambitious quality of life indices may include concepts such as leisure and security, but can become increasingly ambitious as socio-cultural and political indicators are added (Hall, 1983). They are more multidisciplinary and encompassing in their approaches when compared to GNP and the HDI. The aims of fair trade and alternative agriculture often include quality of life factors.

4.1.5 Summary

GDP, GNP, the HDI and the quality of life indices all have their advantages and faults as indicators of development. The simplicity of GDP, GNP and the HDI allow for ease of comparison, but they do not usually provide adequate detail to fully understand the many effects associated with development. For these reasons a number of different indicators were chosen for this thesis (see the measures in the hypotheses and *a priori* beliefs in sections 4.2 and 4.3). The final questionnaires included many different questions in an attempt to increase the understanding and background of the research (see Appendix 1). Some of the questions have quality of life dimensions.

4.1.6 Various Schemes to Assess Socially Responsible Enterprises

Since the 1960s, the growing role and power of business in society have been realised. Consumers, investors, and the general public have become increasingly aware of the potential failings of businesses, which range from ecological disasters, to unfair dismissal. The majority of businesses are starting to respond to this growing concern. ATOs are examples of organisations that have socially responsible aims (see section 2.1). Social Auditing is one way of assessing how socially responsible an enterprise is. Company rating systems (such as the "Fortune Reputation Ranking", or the "Domini 400 Social Index") could also be used by stakeholders as a base for their investment and purchasing decision making. For another example of company rating see the Council on Economic Priorities (1991), which rates companies in terms of charitable giving, environmental impact, information disclosure, community outreach, and so on.

4.1.7 Social Auditing

Some businesses have gone as far as adding social and environmental auditing to the legally required financial audit. The New Economic Foundation and Traidcraft (an ATO) developed the methodology of Social Auditing (SA). SA is a process which defines, observes and reports measures concerning the ethical behaviour and social impacts of businesses in terms of a company's own aims, and those of its "stakeholders"[1] (Zadek, 1994). Primary data are collected from the stakeholders to assess the company's social and ethical performance, usually on an annual basis. These reports are published and validated by external institutions. SA not only provides a benchmark, it also allows comparisons to be made between organisations (Hopkins and Straughan, 1995). Pruzan and Thyssen (1994) developed a similar scheme at the Copenhagen Business School. However their scheme does not allow external bench marking, partly due to the fact that it is not externally validated. Although neither of these schemes are currently used to certify or label an organisation as being ethical, or socially responsible, they do provide a certain degree of social responsible input and transparency to the stakeholders, and other concerned individuals. SA can therefore be used not only as a marketing tool. It can also provide a means of improving a company's social responsible performance by highlighting a company's strengths, weaknesses, opportunities and threats, in a similar way to financial and environmental auditing.

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[1] A business's stakeholders include its customer, employees, suppliers, investors, the surrounding community, in fact anyone who is affected by its activities.

> Freimann (1995), calls social and environmental auditing, 'company testing' and believes that questions of "the legitimacy, independence and neutrality of the institution conducting the company test, and its acceptance by companies and test addressees" (Freimann, 1995, p 381) are important.

He also mentions the problems of comparison when corporate profiles vary, and the likelihood that companies will not want to publish negative results.

Social Auditing is not only valuable for marketing and managing individual companies, it may also have a wider role; namely that of helping to encourage companies to be socially responsible. This is because the public sectors' actions in diminishing and alleviating social problems, is arguably decreasing. As the move towards less interventionist government policies continues, the role of the private sector in this area correspondingly increases (Hopkins and Straughan, 1995). The increasing power of transnational corporations (TNCs), in particular, who conduct the majority of world trade, suggests that the role of SA may be becoming increasingly important.

> As de Colle (1994, p 3) says; "[b]ecause of their often immense size, decisions about the location of investments, production and technology by the TNCs influence not only the distribution of factor endowments between the countries in which they run their activities, but also assume a crucial importance for their social and political consequences".

Social auditing may be one way in which auditors and consumers can encourage companies to be socially responsible.

4.1.8 Summary

The approaches of Social Auditing are useful tools that can be used to assess and encourage social responsibility in companies. Fair trade purports to encompass social, ethical and equity dimensions in its aims. For this reason SA techniques were used in the informal interviews with staff from the organisations involved with fair trade and alternative agriculture (see Appendix 2) and in the final questionnaires (see Appendix 1).

4.2 The Objectives

After completing a review of the research methods the main objectives of the thesis were chosen:

(1) To describe some of the alternative agriculture and fair trade projects and extension and marketing initiatives that are currently underway in northern Thailand.

(2) To examine the effect of alternative agriculture, that uses fair trade principles, on the producers, in terms of economic, social and environmental changes to their lives.

(3) To provide an outline of the trade-off and possible synergy between the concepts and practical applications of alternative agriculture, fair trade and development which is human, sustainable and appropriate.

The first objective was chosen as a way of providing a background to the AA and fair trade work in northern Thailand. It also focuses on the extension and marketing initiatives and organisations involved with fair trade and AA. A literature review and informal interviews with people from the organisations involved with AA and fair trade were the methods chosen to collect these data (see Appendix 2 for a list of the informal interviewees).

The second objective allows for analysis of how alternative agriculture and fair trade actually affect the farmers and their households. Economic, social and environmental comparisons were chosen, in the hope that they can overcome some of the limitations of the Gross Domestic Product, the Gross National Product and the Human Development Indicator, by being more multidisciplinary and by allowing a broad approach that not only encompasses economic and social dimensions. This objective was achieved using formal questionnaires (see section 4.3 for further details, and Appendix 1 for the final questionnaires).

The final objective aims to examine whether AA, fair trade and development, are compatible. The descriptions and discussions in sections 2.1, 2.2 and 2.3 indicate that there are certain similarities between AA, fair trade and development that is human, sustainable and appropriate. This objective is more indirectly approached than the others. A literature review and informal interviews helped to provide the data for this objective.

4.3 The Questionnaires, Hypotheses and *A Priori* Beliefs

4.3.1 Introduction

Using the different development measures and the Social Auditing approaches mentioned in section 4.1 the finalised questionnaires (see Appendix 1) were developed to collect the data required to fulfil objective (b) (see section 4.2). Below there is a discussion of the three groups of questions asked in these questionnaires: namely, economic (4.3.2), social (4.3.3), and environmental (4.3.4) questions. These three groups are obviously very inter-linked. For example, the reduction in the use of artificial agricultural chemicals not only has economic dimensions (in terms of possible reductions in costs), but also social dimensions (in terms of possible improvements in health) and environmental dimensions (in terms of possible decreases in environmental pollution). The classification into the three groups was intended to help focus on the three dimensions chosen. Demographic questions concerning gender, age, marital status and education level, were also asked. The questions were chosen to provide the necessary data for testing the hypotheses and *a priori* beliefs that are given below. Additional questions were asked to provide a more general picture.

4.3.2 Economic Hypotheses and the Economic Questions

(AA = Alternative Agriculture, MA = Mixed Agriculture - farmers who practice both AA and CA, CA = Conventional Agriculture).

The following economic hypothesis will be tested:

1. Net AA Income & home consumption of household farm products >
   Net MA Income & home consumption of household farm products >
   Net CA Income & home consumption of household farm products.
2. AA Costs < MA Costs < CA Costs.
3. AA consumption of household farm products >
   MA consumption of household farm products >
   CA consumption of household farm products.

The first hypothesis examines whether AA does lead to a higher level of net farm income plus home consumption of household farm products than MA and CA. This comparison is an attempt to examine whether AA does increase household economic well-being of AA farming families, when compared to MA and CA farming families. It is a crude standard of living measure and is therefore similar to Gross Domestic Product and Gross National Product (see section 5.1.2) in its approach, but is on a farm, rather than country level. The data required to test this hypothesis were obtained by asking the interviewees about their output, home consumption of household farm products, gross income and total costs (excluding labour)[1], for each of the different crop and livestock types, from each of the different farming methods. Questions concerning the different outlets for the different products and farming methods were asked, including questions to examine whether the fair trade buyers did in fact pay a higher price to the farmers, as would be expected (see section 2.1.2). Household income from forest products, consumption of forest products and non-farm income were other questions that were used to look at net total income and consumption for the different farm types.

The collected cost data were also used to examine the second hypothesis. This hypothesis is concerned with whether costs are lower for AA than MA and CA, as would be expected by the lower input use associated with AA. The issue of a cost-price squeeze is also relevant. For example, if there is output price volatility, costs may be the only financial factor that the farmers can influence. However, with the devaluation of the Thai baht (see section 3.1.1), farmers may have less control over input costs, especially those inputs that are imported. It was a goal to determine if fair trade helps the AA farmers to achieve greater output price stability, through mechanisms such as guaranteed prices.

The home consumption of household agricultural products data are also analysed in hypothesis (3). This hypothesis focuses on issues of household self-sufficiency in food. This is thought to be of relevance, because it may help to lead to greater self-reliance (see section 2.3.4).

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[1] Total costs excluded labour, because the data were found to be difficult to collect and inconsistent. The limitations associated with the exclusion of labour costs are discussed in section 6.3.

Additional economic questions included the effects of different farming methods on income fluctuation and open-ended questions about the economic problems in the village. Background questions, including land area and land ownership, were also asked.

4.3.3 Social *A Priori* Beliefs and the Social Questions

The *a priori* beliefs used for social comparisons are:

1. AA extension information and new skills will be greater than those of CA.
2. Health, safety and working conditions in AA are better than those in CA.

The choice of both of these *a priori* beliefs stems from the social objectives of education, improved health, safety and working conditions that are often mentioned by Alternative Trading Organisations (section 2.1.4), and by some organisations involved with AA (see section 2.2.3 and 2.2.5). The Human Development Indicator (see section 4.1.3) also includes health (through the longevity variable) and education (via the knowledge variable). However, all of these social issues also have economic dimensions. For example, improvements in health often lead to decreased medical costs and increased labour productivity.

Health and working condition questions asked whether changes had resulted from a move to different farming practices. There was another question that asked whether the interviewees personally knew people who had become ill from using agricultural chemicals (as mentioned in section 3.3.1, data regarding illness and death from agricultural chemical use is very limited). Farmers were asked if they had learnt new skills from AA, and if so what and from whom. Open-ended questions concerning the social problems in the village were also asked.

4.3.4 Environmental *A Priori* Beliefs and Environmental Questions

The three main *a priori* beliefs used for environmental comparisons are:

1. AA is more integrated than MA and CA.
2. The use of artificial agricultural chemicals and artificial fertilisers in AA is lower than that of MA, which will be lower than that of CA.
3. Wildlife quantity and variety increases with AA practices, and decreases with CA.

These environmental *a priori* beliefs were used to examine whether AA had resulted in environmental improvements, when compared to MA and CA. The first *a* *priori* belief measures whether AA is more integrated than MA and CA. It is assumed that an increase in the degree of integration of different crop and livestock types on each farm, will improve overall biodiversity (the third *a prior* belief) as well as creating additional benefits, such as improved soil structure and composition (see section 2.2.3).

Farmers were asked about the number of different crop and livestock types on their farms. Interviewees were asked if they had noticed changes in the total amount and variety of wildlife within their village boundary since the introduction of conventional methods. MA and AA farmers were also asked if they had observed changes in the total amount and variety of wildlife within their village boundary since the introduction of AA techniques.

The second *a priori* belief assumes that the application of most artificial agricultural chemicals may clause negative environmental impacts (Chantalakhana, 1995). Farmers were asked about their use of artificial agricultural chemicals and the use of their alternatives, to ascertain whether AA farming used more of the former and less of the latter, when compared to CA methods.

Although this section deals with environmental issues, these issues also have economic and social dimensions. For example, reduced artificial chemical use is likely to reduce costs, and to reduce health risks.

Additional environmental questions were asked, including an open ended question asked about the environmental problems in the farmers' village.

4.3.5 Drafts and Revisions

The questionnaires were translated from English to Thai by the author's Thai supervisor, Dr. V. Punyawadee, after undergoing various drafts. The Thai version was then pre-tested at both the chosen research sites by the author, her supervisor and translators. Various revisions resulting from pre-testing problems were corrected. Staff from both government and non-government organisations and academics who are involved with AA and fair trade made further suggestions. The English version of the finalised questionnaires can be found in Appendix 1.

4.3.6 The Final Questionnaires

There were three different final questionnaires that were used for the formal data collection from farmers. One questionnaire (Appendix 1.a) was directed towards farmers who practice only AA. Another questionnaire (Appendix 1.b) focused on farmers who use CA techniques only. The other questionnaire (Appendix 1.c) was used when farmers practice a combination of alternative and conventional agricultural techniques on the same farm; this has been called, 'mixed agriculture' (MA) in this thesis.

The final questionnaires have many limitations. These limitations include the fact that factors other than the AA and fair trade approaches may have affected the AA producers. Translation and language limitations may cause problems in the use of the final questionnaires as tools for collecting the required data. The cross-sectional, rather than longitudinal, choice of data collection is unlikely to allow a thorough examination of the effects of AA and fair trade. Instead it will only provide a description of the effects at a particular moment in time. Finally the selection of the study areas limits the research to focus on the chosen areas only, therefore the findings can not be seen as a description of the effects of AA and fair trade throughout Thailand, but instead only as case studies of the chosen research sites. A description of further limitations can be found in section 6.3.

4.4 Selection of Study Areas

Eighteen Thai ATOs were contacted before the author arrived in Thailand. Upon arrival various ATOs and producer groups were visited, including a number of villages with AA projects. The Thai government extension project at Village Three in Pong Yang sub-district and Mae Rim district was chosen as one research site. The NGO based AA project at San Pay Yang sub-district in Mae Taeng district and the neighbouring Sa Lueng sub-district in Mae Rim district were favoured as the other research area. These research sites were chosen as they were located relatively near to Maejo University (where the author was based), which is near to the provincial capital of Chiang Mai. Another advantage these sites had over others was the relatively large numbers of AA farmers, and the relatively well established nature of their AA projects.

4.5 Selection of the Sample and Data Collection

A total of eighty-one farmers were selected for interview from the two chosen AA projects areas. These interviews took place between September and November 1997. Forty-one of the interviews were collected from the government AA project area of Village Three in Pong Yang. The remaining forty interviews were collected from the NGO based AA project area in San Pay Yang and the neighbouring San Lueng. Some of the interviews that were conducted at Village Three, Pong Yang were organised by the village headman and were conducted in his house. Even so, the majority of interviewees were randomly selected and the interviews were not prearranged. The interviews occurred in either the farmers' fields or their homes. Interview questions were asked in Thai, by Maejo University students and staff. The author was present on all but one of the trips to the research sites.

Informal interviews with farmers, government organisations and non-governmental organisations who work with the farmers, and other relevant people (see Appendix 2) were also conducted by the author. Some of these interviews were conducted in English, but when appropriate a Thai language translator from Maejo University assisted.

Chapter 5: The Data, Results and Discussions

This chapter starts with a section describing the two chosen producer group areas. The next section fulfils objective (a) of the thesis. It provides a description of some of the alternative agriculture and fair trade work that is currently underway in Northern Thailand. The focus is on the different organisations involved. Section 5.3 gives a socio-economic profile of the questionnaire respondents. The final three sections fulfil objective (b) of the thesis by explaining the effects of alternative agriculture, which uses fair trade principles, on the producers. This explanation includes comparisons of AA with MA and CA. These comparisons are separated into economic (section 5.4), social (section 5.5) and environmental (section 5.6) sections to show the multidisciplinary approach of this thesis. There are many inter-linkages between these different sections, and they should be viewed holistically to obtain an overall impression of the effects of AA and fair trade on the producers.

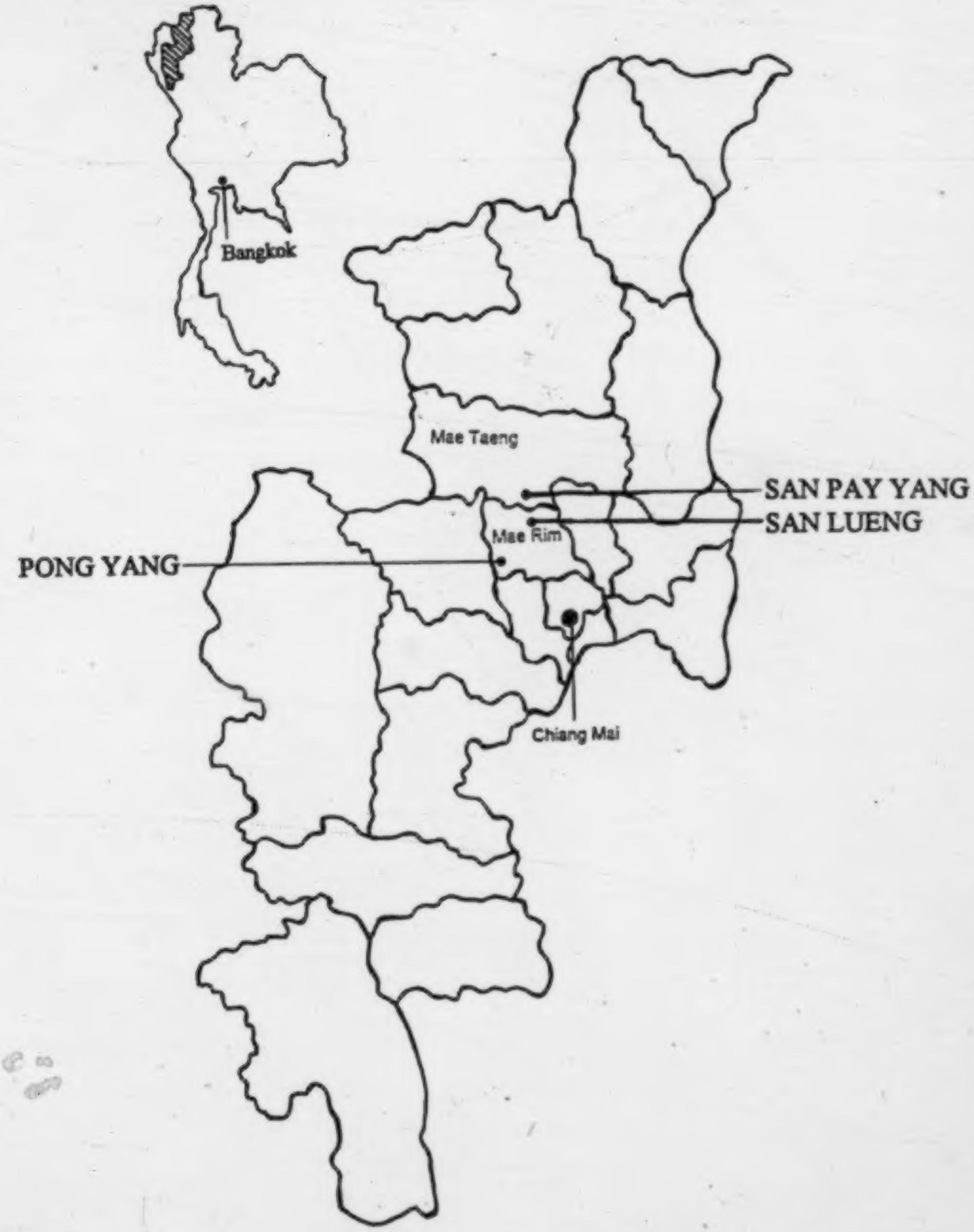
5.1 Description of the Producer Groups

5.1.1 Introduction

The two chosen producer groups are the government extension project at Village Three in Pong Yang sub-district, and the NGO project at San Pay Yang sub-district and neighbouring Sa Lueng sub-district. Both sites are located in the highland area of Chiang Mai province in Northern Thailand (see Figure 1). This area consists of steep slopes, with poor to medium soil fertility levels and an erosive monsoon climate (Turkelboom and Van Keer, 1996). In the past, many of the farmers practised shifting cultivation, but as a land shortage arose the fallow period became shorter. The slopes, fragile soils and monsoon climate of the area meant that soil erosion became an increasing problem.

Government and NGOs have attempted various extension projects to help the farmers find alternatives to shifting cultivation and the traditional products and markets that are usually associated with low income levels. Even though the farming households from the chosen research sites have been provided with much support from outside organisations, the majority of households still find it necessary for some members to take non-agricultural work (often outside of the village) to supplement the household income.

Figure 1: Map of the Relevant Districts and Sub-districts in Chiang Mai Province


Bangkok
Mae Taeng
SAN PAY YANG
SAN LUENG
Mae Rim
PONG YANG
Chiang Mai

Adapted from Wytinck, 1997, p 27.

5.1.2 Village Three, Pong Yang

Pong Yang sub-district consists of nine villages, all of which are located in Mae Rim district. Data were collected from Village Three, Pong Yang. Village Three, Pong Yang is a model village for government agricultural extension work. The focus of the AA project in this village involves vegetable production, with the provision of nylon netting, some alternatives to agricultural chemicals, as well as marketing and extension advice. The government has also advised farmers to switch from the more traditional farming of rice and soybean to more intensive and supposedly higher income cash crops of Integrated Pest Management (IPM) flower farming and IPM strawberry production. Although IPM is supposed to minimise agricultural chemical use, both strawberry farming and flower production for conventional markets requires that the products be free from insect damage and disease. For this to be achieved high levels of artificial agricultural chemicals are applied. For this reason, it was decided to classify IPM strawberry production and IPM flower production as types of conventional agriculture (CA). A further justification for this classification was the fact that these crops are not marketed, certified or labelled with any alternative agriculture, or 'chemical safe' claims.

Very few farmers in Village Three, Pong Yang grow traditional agricultural crops, such as rice. Rice was often grown in the past to provide a certain degree of self-sufficiency in food. The new crops are cash crops that have encouraged farmers to move away from self-sufficient food production towards market orientated farming. The government advice, which led towards these changes, has evolved from the realisation that the largest bottleneck to agricultural production in Village Three, Pong Yang is the land shortage. This is partly because the area surrounding the village is designated as a National Park. This means that the villagers can not legally extend their agricultural holdings into the forest, and they are not permitted to harvest or consume any forest products. The author observed obvious violation of these rules, with forest encroachment and consumption of forest products being very apparent (see Figure 2). The villagers are not only in land conflict with the National Park officials. Increasing land pressure is also coming from rich Thais who want to purchase land for a second home in the mountains, and from the tourist industry. One such example can be seen in Figure 2. The large house is being built for a Japanese man and his Bangkokian wife at a cost of tens of millions of baht. The competition for land in this area has led to rising land prices. Some farmers sell their land, spend the money they make and are left with nothing. They then have various options that include moving further into the National Park, migrating to other rural areas in search of land and/or becoming hired labourers in either rural or urban settings.

Figure 2: Photograph of Forest Encroachment & Land Pressure at Village Three, Pong Yang

Photograph credit: M. Renner

Part of the traditional village remains intact. For example, there is a village headman and a Buddhist temple. However the increasing pressures in the highlands from population growth, government policies and market influences (Turkelboom and Van Keer, 1996) are causing rapid changes. One visible change involves the choice of clothing. The villagers now wear a mixture of traditional and modern clothing, with the older villagers favouring the former and the younger villagers favouring the latter. Further examples of the modernisation in Village Three, Pong Yang include paved roads to the provincial capital of Chiang Mai, an electricity supply and satellite dishes (see Figure 3). These are some of the factors that have increased the rate of the modernisation in the village. Social problems such as the spread of AIDS and increasing chemical drug abuse have arisen as a result of modernisation.

Figure 3: Photograph Showing Examples of Modernisation in Village Three, Pong Yang

Photograph credit: M. Renner

5.1.3 San Pay Yang and San Lueng

San Pay Yang and San Lueng are neighbouring sub-districts in Mae Taeng and Mae Rim districts, respectively (see Figure 1). Data were collected from MA, AA and CA farmers in these areas. These MA and AA farmers have been provided with extension advice, resources and market outlets from NGOs. The Foundation for Education and Development of Rural Areas (FEDRA) is the predominant organisation involved. Imboon (another Thai NGO) provides additional advice and market opportunities. Government involvement has been minimal, with the provision of nylon netting for AA vegetable production for a small number of farmers.

The focus of the NGOs is very different from that of their government counterparts in Village Three, Pong Yang. The NGOs promote a move away from the market economy, back to self-sufficiency in food production with a surplus to be sold to provide for the farmers' cash requirements.

San Pay Yang and San Lueng do not have the same land shortages as Village Three, Pong Yang, so agricultural methods are usually less intensive. One of the main pressures that some of the farmers from San Pay Yang and San Lueng experience is the lack of land titles to their farms. Applications for land titles have been filed this year, and if they are granted the farmers will have increased levels of security and stability.

The CA farmers in this area are more traditional than their Village Three, Pong Yang counterparts. Many of the San Pay Yang and San Lueng CA farmers grow rice for home consumption, and then at least one cash crop, such as soybeans, for their cash requirements. The NGO's work has led to a move from slash and burn farming towards AA, which includes permanent and integrated farming, chemical-free vegetable production and agroforestry. (Other NGO extension projects include a buffalo bank, a rice bank, supplying lychee fruit trees, loans, etc., which the villagers can participate in as they wish.)

Although San Pay Yang and San Lueng are moving increasingly into the market economy, the author sensed that bartering appears to be more important than in Village Three, Pong Yang. The fact that the road infrastructure and electricity supply in San Pay Yang and San Lueng are less developed than those of Village Three, Pong Yang may partly explain the author's observation that these areas are less modernised than Village Three, Pong Yang.

5.2 Description of the Organisations Involved in Extension and Marketing

5.2.1 Introduction

Brief outlines of the organisations involved with the research sites were given in section 5.1. This section builds on those outlines to further explain the work and beliefs behind these organisations. The government organisation provides extension and labelling advice and resources to the farmers in Village Three, Pong Yang. The Foundation for Education and Development of Rural Areas (FEDRA) and Imboon provide extension, labelling and marketing assistance to the San Pay Yang and San Lueng farmers. The San Pay Yang and San Lueng farmers are sometimes provided with resources from their local government agricultural extension offices. The descriptions of the motivation, extension advice, policies on artificial chemicals and their alternatives, labelling, marketing, pricing and funding situations of the relevant organisations are provided to increase the understanding of AA at the research sites.

5.2.2 Mae Rim Government Extension Office

The government organisations involved with AA range from the local Agricultural Extension offices up to national government agencies and agendas. The Mae Rim sub-district Agricultural Extension office provides extension and inputs for the farmers at Village Three, Pong Yang.

5.2.3 Motivation

The motivation behind the local government extension work comes from "The Eighth National Economic and Social Development Plan (1997-2001)" (National Economic and Social Development Board (NESDB), 1996).

> This policy document not only focuses on the promotion of "self-reliance…[but also on]…strong family relationships, conservation and sound management of natural resources as a basis for sustainable development and to ensure that environmental pollution is minimized." (NESDB, 1996, p 56). It goes on to specify that one of the targets which will be used to achieve this is to "[e]xpand the area of farmland under sustainable agriculture to no less than 20 per cent of the total agricultural land in the country" (NESDB, 1996, p 57) by 2001 under the Sustainable Agricultural Development Scheme (NESDB, 1996, p 65). Natural farming, organic farming, agro-foresty and integrated farming are suggested

directions in which agricultural production can be restructured "to help farmers to diversify and so minimize risks to their income from price fluctuations in produce markets, cut production costs and rehabilitate natural resources and environments" (NESDB, 1996, p 65).

Sustainable agriculture is also to be promoted through reductions in the obstacles for export, through product labelling concerning environmental and conservation issues and through public information campaigns to promote the consumption of environmentally friendly products, including organic foods (NESDB, 1996). Research into organic substances to replace agricultural chemicals and support for NGOs are also mentioned (NESDB, 1996).

5.2.4 Extension Advice

The Village Three, Pong Yang farmers receive extension advice from the Mae Rim Government office and are part of a model extension project. The agricultural extension officers have two main agricultural approaches. The first is Integrated Pest Management (IPM) and the second is 'chemical safe' production.

The strawberry and flower farmers at Village Three, Pong Yang are part of the IPM extension project. Noparat (1997) believes that although the government is trying to decrease the use of artificial agricultural chemicals. The farmers use more chemicals than they should. This is mainly because consumers want aesthetically pleasing fruit, and especially flowers, and the use of artificial chemicals is required to meet these demands.

The 'chemical safe' extension project focuses on vegetable production. There are sixty-four farmer members in the 'chemical safe' extension project. These members are both male and female and the group leader is democratically elected.

The Mae Rim government officers advise AA farmers that artificial fungicides are allowed during the first two weeks after planting. Artificial fertilisers are permitted throughout the whole production time. Pesticides can not be used.

The use of alternatives to artificial agricultural chemicals is promoted through extension workers and materials including colour brochures with pictures and photographs that explain AA techniques and methods. Neem, bacteria and virus are some of the types of alternatives that are promoted, and sometimes provided to the AA farmers free of charge by the government. Some of the alternative products that the government promotes are locally available (i.e. neem), but most are imported products – thereby reducing the self-reliance options that are available to the farmers.

5.2.5 'Chemical Safe' Labelling and Marketing

The vegetables are labelled as being, 'chemical safe'. The main label that is used is an Agricultural Extension district label, which also includes a national standard logo from the national Agricultural Extension Office. This national standard is also used by the other organisations that label and sell the AA vegetables from Village Three, Pong Yang, for example the 'Dr. Vegetable' label.

The 'chemical safe' vegetables are sold through various retail outlets including department stores in Chiang Mai and at sub-district, provincial and national markets.

5.2.6 Pricing and Funding

The price of 'chemical safe' vegetables is the same all year, for ease of accounting (Noparat, 1997). Noparat (1997) believes that the average price of the 'chemical safe' vegetables is higher than their conventional equivalents, even though at some points of the year the cost of AA vegetables may be lower than that of conventional vegetables. Noparat (1997) believes that farmers receive seventy per cent of the consumer price, while the store receives twenty per cent and the vegetable group receives the remaining ten per cent.

Funding for the government agricultural extension work comes from government revenue. At the Mae Rim district level, this funding not only pays the government officers' salaries, it is also used to provide fertiliser, growth hormones, nylon netting, labels, posters, brochures, compost and so on to the AA, MA and CA producers (Mae Rim District Agricultural Extension Office, 1997).

5.2.7 Non-Governmental Organisations (NGOs)

San Pay Yang and San Lueng receive extension and marketing help from two NGOs, namely The Foundation for Education and Development of Rural Areas (FEDRA), and the Project for the Development of Alternative Agriculture Producers and Consumers Network in Upper Northern Thailand (or Imboon).

5.2.8 The Foundation for Education and Development of Rural Areas (FEDRA)

Phra Dhamadilok established FEDRA in 1974 at Wat Pa-Darapirom, in Chiang Mai province. The Unit for Agricultural Development, within FEDRA, works in rural areas, mostly by co-operation between neighbourhood leaders and the temple staff.

5.2.9 Motivation

FEDRA aims to provide education and advice to help people in rural areas to achieve a better standard of living, higher education levels and to preserve the environment. Other objectives of the project include preserving the culture of the region, encouraging the development of logical thinking to enable better decision making, and the development of self-responsibility of each individual in the region. The foundation hopes that by educating rural people they will become more aware of their cultures, their families and their environment. Therefore they will be more inclined to remain in the area, instead of moving to cities to find employment, which results in a lack of development in their home region (FEDRA, undated).

5.2.10 Extension Advice

The FEDRA AA work has three main projects; manure is used as a replacement for artificial fertiliser and chemical-free fruit and vegetable production, and fruit tree plantations are also encouraged.

FEDRA believes that sustainable agriculture has four main components. First, family labour should be used so that families can continue to live together as a unit, and benefit socially from this interaction. Second, integrated cropping (as opposed to monocropping) should be practised to stabilise income and to increase biodiversity. Third, food production for adequate home consumption should be a priority. Finally, the health of the farmers and consumers, as well as the environment, should be improved (Prompunya, 1997).

The rural development work of FEDRA is well known by farmers (through word-of-mouth), and villages approach the Foundation requesting help. Once a village has organised a group, a FEDRA employee visits the group to see if it will be possible to implement an appropriate project. If it is, FEDRA will provide funding, education and advice as necessary. The extension methods used are training, demonstration and farm trials and field trips to model farms (FEDRA, undated). Villagers join the projects that they want to. The Foundation aims to promote self-help, and to leave groups when they become self-reliant, although no group has yet achieved self-reliance (Prompunya, 1997). Even more worrying are the observations of Tangtrongbenjasil and Tanakilkosert (1992), that some of the villagers expect to be given funding for projects, and that they do not always follow these projects through. Some of the villagers appear to have become dependent on FEDRA for funding and subsidies. Unfortunately this does not help the villagers achieve self-reliance, in fact it is likely to have the opposite effect. FEDRA may need to change its development approach, and the attitudes and expectations of some of the villagers may also need to be addressed, if these problems are to be overcome.

FEDRA (undated) promotes the use of aromatic crops (including galangam, neem, and sweet lemon grass) to control insects, to reduce chemical residues and to maintain the ecosystem. Organic fertilisers (such as compost and animal manure) are suggested to improve soil fertility and reduce the use of agrochemicals. Integrated farming is supported as it improves soil nutrients, and serves as a pest control method. Crop rotation is favoured as a form of increasing plant nutrients in the soil. Finally, agroforestry of temperate fruit trees (including peach, apricot and persimmon) is suggested as a method of increasing farm income.

5.2.11 AA Labelling and Marketing

FEDRA promotes home consumption first, and if there is excess this is marketed. The excess production level is small, and it is mainly sold within the local vicinity, due to the transport costs and the problems of perishing associated with selling outside of the local area (Prompunya, 1997). One example of sales outside of the San Pay Yang and San Lueng area is at Wat Pa-Darapirom where a stall is provided for the farmers to sell their excess chemical-free fruit and vegetables[1]. This stall also promotes the development work of the temple, as well as educating people about AA. The weekly Wednesday sale of fruit and vegetables can be seen in Figure 4. Notice the sign at the back, which informs consumers that the produce is grown using AA methods. Labels are also used, by some producers, to inform consumers that the produce is alternatively produced.

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[1] FEDRA also sells crafts produced by village women to supplement their income. The women are provided with the raw materials and the finished products are then sold through the cooperative shop at Wat Pa-Darapirom, or are exported through the YMCA (a Thai ATO), to be sold in Europe by Oxfam (an international ATO).

Figure 4: Photograph of Sale of AA Fruits and AA Vegetables at FEDRA

Photograph credit: M. Renner

5.2.12 Pricing and Funding

The AA farmers who sell their produce at the temple stall set their own prices. When the author purchased AA produce from the stall on 24 September 1997 the seller did not want any money for the mushrooms that had been harvested from the forest, and she charged a very low price for the AA vegetables. The author believes that the villagers from San Pay Yang and San Lueng appear to undervalue their produce and especially the labour costs involved with producing and/or harvesting the produce.

FEDRA receives the majority of its funding from the German NGO, "Bread for the World". Local Thais provide a small amount of additional funding.

5.2.13 Imboon

Imboon consists of two parts: one is the Imboon Center which is a retail outlet that sells AA produce, herbal medicine, fairly traded crafts and related literature; the second part is the NGO Project for the Development of Alternative Agriculture Producers and

Consumers Network. This project is under the umbrella NGO of the Northnet Foundation (Northnet Foundation, undated). Northnet is involved with six other projects.

5.2.14 Motivation

Imboon's vision is for society to attain peace and happiness, and for people to have their rights of freedom, place, equality, mutual help, wisdom, good health and environmental sustainability.

> Imboon's mission is to, "promote and support the relationship between organic food producers and urban consumers" (Northnet Foundation, undated). Imboon aims "to campaign and disseminate information on alternative agriculture to producers, to create and strengthen organizations of producers [and] to develop alternative agriculture as a viable option to modern agriculture" (Bontuyan, et al., 1996, p 12).

5.2.15 Extension Advice

Imboon organises training and workshops on the concepts and practices of AA, processing and alternative marketing. It also establishes, promotes and aims to expand producer groups and a producer-consumer network. Imboon's ultimate goal is to establish farmer-resource-persons who will share their experiences and knowledge with other farmers (Bontuyan, et al., 1996).

Imboon promotes the use of alternatives to artificial agricultural chemicals, and does not allow the use of any chemicals in the produce that are sold at the Imboon Center (Chumchuan, 1997). Agroforestry is promoted in the highlands, and diversification, crop rotations and integrated farming are favoured for lowland areas (Bontuyan, et al., 1996).

5.2.16 AA Labelling and Marketing

Imboon has been involved in establishing the Alternative Agriculture Certification of Thailand (ACT, see 3.3.9). Until the ACT is finalised, Imboon has its own AA label that is shown on the bag in Figure 5.

The Imboon Center is one of the retail outlets, outside of the local area, that is available for the AA farmers at San Pay Yang and San Lueng. Imboon has also established a weekend market for AA produce. Imboon indirectly markets AA produce by organising training and workshops on consumer rights, field visits where urban consumers go and visit AA farms, and by providing support to AA food producer-consumer groups and networks.

Figure 5: Photograph of Imboon AA Labelled Bags

Photograph credit: M. Renner

5.2.17 Pricing and Funding

The Imboon Center sells AA products at prices that are usually above their conventional equivalents (Chumchuan, 1997). This is because Imboon believes in fair trade. Unfortunately the Imboon Center has been running at a loss, particularly in the vegetable and fruit sector. Bontuyan, et al., (1996) suggest that this loss is due to problems of perishable products, insufficient advertising, narrow marketing channels and a lack of business management knowledge and skills, due to the development background of the majority of the Imboon staff. The Imboon Center is currently trying to overcome these problems; for example they now have a Marketing Adviser working for them.

Northnet, and therefore Imboon, receive funding from an aid agency from The Netherlands and from the Japanese Embassy. Imboon not only relies on foreign organisations for its direct funding, it also has various full-time foreign volunteers who are funded by their countries of origin. Mr. J. Rosenkranz and Mr. E. Little are two such volunteers. Mr. Rosenkranz is a German volunteer who is involved with AA extension work and Mr. Little is an Australian volunteer who is the Marketing Advisor for the Imboon Center.

5.2.18 Co-operation Between Different Organisations

The NGOs involved with AA in Chiang Mai have formed a northern region Alternative Agriculture Network (see section 3.3.8). The members of this network are staff from the AA projects of the following NGOs: the YMCA, the Inter Mountain Peoples Education and Culture in Thailand Association (IMPECT), the McKean Rehabilitation Center, Imboon, the FEDRA and the Northnet Foundation (see Appendix 2 for the list of people contacted at each of these organisations). This network aims to work collaboratively with producer, consumer, marketing and policy initiatives.

The producer work involves summarising and sharing experiences and knowledge, maintaining a clear database of information, producing a newsletter about AA and developing village leaders and local resource people.

The consumer initiatives include providing lectures to consumers and secondary school students and organising market fairs and Eco-Tours for the Consumer Club. The network also hopes to conduct a consumer survey. Marketing initiatives involve improving product quality, developing packaging, producing a product catalogue, labelling each product and increasing the number of retail outlets.

The networks policy work includes advocacy to increase the governments commitment and support for AA (FEDRA, 1997). The network and its members also meet with government officers on occasion. For example, FEDRA networks with the relevant district Agricultural Extension offices to ensure that MA and AA farmers are provided with nylon netting if they want to grow AA vegetables (Prompunya, 1997).

5.2.19 Summary

The organisations involved in the extension and marketing at Village Three in Pong Yang, San Pay Yang and San Lueng have similarities and differences. The NGOs are focused on AA, while the government promotes IPM, AA and other types of agriculture, with some degree of contradiction (LeClair, 1997).

Labelling and certification are seen to be important for all the organisations involved, although not all the AA producers interviewed always used AA labels, signs or verbal explanations when selling their AA products. Imboon and the Mae Rim Agricultural Extension Office both believe that price premiums exist for their AA products. FEDRA allows the producers greater independence in terms of pricing, which appears to have had an adverse financial effect on the producers, as they undervalue their produce. All the organisations involved rely on outside funding. Networking, particularly between the NGOs, was apparent.

5.3 Socioeconomic Profile of Questionnaire Respondents

The previous two sections describe the research sites and the organisations involved with extension and marketing. Having set this scene, the socioeconomic profile of the questionnaire respondents is provided in Table 1 to provide further details before the economic, social and environmental data are given.

Forty-one interviews were conducted at Village Three, Pong Yang. These interviews consisted of two AA farmers, nineteen MA farmers and twenty CA farmers. The number of women interviewed was twelve, compared to twenty-nine men. Two farmers could not read or write, thirty-three had basic primary education, five had secondary education and one had post-secondary education. This gives an average of 4.66 years of education per interviewee. The household size of the farmers ranged from two to fifteen with an average size of 4.49. The average farm areas were as follows; MA was 2.81 rai[1] (1.16 rai for AA and 1.65 rai for CA), AA was 4.5 rai, and CA was 2.45 rai. Although the average farm size for the three agricultural types differ, they were not found to have significantly different means when a t-statistic was calculated at the 1% level. These results can be largely explained by the relatively large standard deviation values (see Table 1).

Thirty-eight interviews were conducted at San Pay Yang and San Lueng. These interviews consisted of sixteen AA farmers, ten MA farmers and twelve CA farmers. The number of women interviewed was sixteen, compared to twenty-two men. One farmer could not read or write, thirty-four had basic primary education, one had secondary education and two had post-secondary education, giving an average of 3.79 years of education per interviewee. The household size of the farmers ranged from two to nine with an average size of 3.71. The average farm areas were 10.49 rai for MA (5.86 rai for AA and 4.62 rai for CA – with AA and CA sometimes being grown on the same plot, but in different growing seasons), 14.76 rai for AA and 5.64 rai for CA. Although the average farm size for the different farm types varies, they were not found to have significantly different means when a t-statistic was calculated at the 1% level. This is partly due to the relatively large standard deviation values (see Table 1).

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[1] One rai = 0.16 hectare = 0.4 acre.

Table 1: Socioeconomic Profile of Questionnaire Respondents[1]

Research Site	All	Village Three, Pong Yang			San Pay Yang, San Lueng		
Agricultural Type	All	AA	MA	CA	AA	MA	CA
N	79	2	19	20	16	10	12
Average age	42.13	35.00	42.37	34.45	44.75	49.30	46.25
Number of males	51	2	15	12	10	4	8
Number of females	28	0	4	8	6	6	4
Average family size	4.11	4.00	3.89	5.10	3.62	3.80	3.75
Average education (years)	4.24	7.50	4.53	4.50	4.37	3.27	3.50
Average farm area (rai)	6.58	4.50	2.81	2.45	14.76	10.49	5.64
Area - low (rai)	0.50	2.00	0.50	0.50	2.00	4.00	0.50
Area - high (rai)	54.50	7.00	7.00	7.00	54.50	29.50	12.00
Area s. d.	8.12	3.53	1.96	1.65	12.67	7.07	3.86

s. d. = standard deviation.

The data that were collected from two additional farmers at San Pay Yang and San Lueng were excluded from the final data analysis, as they were thought to be outliers. One of these interviewees was an AA flower grower whose farm area was only 0.125 rai. The other interviewee was a MA farmer whose CA plot consisted of an intensive chicken rearing unit; the income and costs associated with this unit were very high, and would have skewed the data.

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[1] This table was compiled using data collected from the responses to questions 1, 2, 4, 5 and 7 in Appendix 1.

5.4 Economic Comparisons

5.4.1 Introduction

This section focuses on economic comparisons between MA, AA and CA farmers, and between the farmers from Village Three in Pong Yang and those from San Pay Yang and San Lueng. The figures for net farm income plus home consumption of household farm products are compared. It is expected that AA income levels will be higher than MA incomes, which will be higher than CA incomes. Total costs excluding labour are compared. There is a belief that CA costs will be the highest, followed by MA costs, and AA costs will be the lowest. Finally, value of home consumption of household farm products is examined. It is predicted that AA consumption will be highest, followed by MA consumption, and that CA consumption will be lowest.

5.4.2 Net Farm Income & Home Consumption of Household Farm Products

The first economic hypothesis is that:

Net AA Income & home consumption of household farm products >
Net MA Income & home consumption of household farm products >
Net CA Income & home consumption of household farm products

Hypothesis 1 focuses on whether AA does in fact lead to a higher net farm income[1] than MA and CA. Table 2 shows that on a whole farm basis the net farm income and home consumption of household farm products[2] for Village Three, Pong Yang is lowest for MA farmers (62,414 baht/farm), followed by AA farmers (87,540 baht/farm) and highest for CA farmers (114,058 baht/farm). On an area basis (see Table 3) AA net farm income and home consumption of household farm products is the lowest (19,453 baht/rai) followed by MA (22,830 baht/rai) and CA is the highest (46,555 baht/rai).

When the MA farms are divided into AA plots and CA plots, on a per rai basis, (see Table 4) the AA plots have the lowest net farm income and home consumption of household farm products (12,413 baht/rai) and the CA plots have the highest net farm income and home consumption of household farm products (36,354 baht/rai). These data are opposite to expectations.

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[1] Net farm income = gross farm income - total costs.

[2] Home consumption of household farm products is an approximate value of each farm household's consumption of their own crop and livestock production.

When the income from forest products, household consumption of forest products and non-farm income[1] is added to the net farm income and home consumption of household farm products then the results are very different (see Table 2). AA farmers have the highest whole farm net total income and consumption level (126,990 baht/farm), followed by CA farmers (124,158 baht/farm) and MA farmers have the lowest level (64,893 baht/farm).

Table 2: Collected Data for Income, Consumption and Costs (baht/farm) from 1 May 1996 to 30 April 1997[2]

Research site	Village Three in Pong Yang			San Pay Yang, San Lueng		
Agricultural type	AA	MA	CA	AA	MA	CA
Gross farm income	80316 (42873)	92990 (63604)	149538 (155289)	21220 (26327)	35432 (25292)	24294 (19381)
Total costs*	**16615** **(4787)**	**31832** **(23682)**	**36010** **(26220)**	**4795** **(7806)**	**7673** **(7929)**	**4331** **(4866)**
Net farm income	63701	61158	113528	16425	27759	19963
Home consumption of H/H farm products	**23839** **(33360)**	**1256** **(873)**	**530** **(1165)**	**11898** **(16686)**	**15383** **(24704)**	**13946** **(20056)**
Net farm income & home consumption **	**87540** **(81020)**	**62414** **(48148)**	**114058** **(141234)**	**28323** **(29714)**	**43142** **(44004)**	**33909** **(29653)**
Forest income	445	0	200	547	30	25
Forest consumption	5	5	0	1006	282	258
Net farm income & consumption	87990 (81650)	62419 (48150)	114258 (141155)	29877 (30346)	43454 (43906)	34192 (29532)
Non-farm income	39000 (46669)	2474 (7198)	9900 (24706)	29937 (47463)	12255 (15745)	23971 (21736)
Net total income & consumption	**126990** **(128326)**	**64893** **(49978)**	**124158** **(140339)**	**59814** **(66833)**	**55709** **(48427)**	**58163** **(34500)**

* = total costs excluding labour. Standard deviation is in parentheses. ** = net farm income & home consumption of household farm products.

The data from San Pay Yang and San Lueng show that net farm income and home consumption of household farm products is lowest for AA (28,323 baht/farm and 1,919 baht/rai), followed by CA (33,909 baht/farm and 6,012 baht/rai), and highest for MA

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[1] Non-farm income includes income from crafts, wages, salary, self-employment, trading and other (for non-farm income sources that were excluded from the list above).

[2] These data were compiled from the responses to questions 8, 9, 21 and 22 in Appendix 1. The data were collected for each crop and livestock type and then these figures were added together to obtain whole farm figures.
The following calculations were made: Net farm income = gross farm income - total costs.
Net farm income & home consumption of household farm products = net farm income + home consumption of household farm products.
Net farm income & consumption = net farm income & home consumption of household farm products + forest income + forest consumption.
Net total income & consumption = net farm income & consumption + non-farm income.

(43,142 baht/farm and 7,302 baht/rai) (see Tables 2 and 3, respectively). When the MA data are divided into AA plots and CA plots (see Table 4) the AA plot is the highest (9,769 baht/rai) and the CA plot is the lowest (4,834 baht/rai). The addition of income from forest products, household consumption and income from forest products and non-farm income produces very different results (see Table 2). On a per farm basis, AA becomes the highest (59,814 baht/farm), CA is second (58,163 baht/farm) and MA is lowest (55,709 baht/farm). On a per rai basis AA has the lowest income level (4,052 baht/rai) followed by MA (8,523 baht/rai) and then CA (10, 312 baht/rai).

Table 3: Collected Income, Consumption and Cost Data (baht/rai) from 1 May 1996 to 30 April 1997[1]

Research site	Village Three in Pong Yang			San Pay Yang, San Lueng		
Agricultural type	AA	MA	CA	AA	MA	CA
Gross farm income	17848 (6502)	34871 (24568)	61036 (53926)	1438 (7191)	5291 (4250)	4307 (1922)
Total costs*	**3692** **(5735)**	**12723** **(12775)**	**14697** **(30067)**	**325** **(332)**	**1149** **(1083)**	**768** **(529)**
Home consumption of H/H farm products	**5297** **(4703)**	**682** **(756)**	**216** **(1289)**	**806** **(2723)**	**3160** **(4602)**	**2473** **(2770)**
Net farm income & home consumption **	**19453** **(3935)**	**22830** **(13829)**	**46555** **(44100)**	**1919** **(9113)**	**7302** **(8466)**	**6012** **(3187)**
Forest income	99	0	81	37	2	4
Forest consumption	1	2	0	68	26	46
Net farm income & consumption	**19553**	**22832**	**46636**	**2024**	**7330**	**6062**
Non-farm income	8667	880	4041	2028	1193	4250
Net total income & consumption	**28220** **(9118)**	**23712** **(14958)**	**50677** **(43953)**	**4052** **(11330)**	**8523** **(8615)**	**10312** **(15724)**

* = total costs excluding labour. Standard deviation is in parentheses. ** Net farm income & home consumption of household farm products.

5.4.3 Discussion

The first economic hypothesis cannot be supported using the collected data for net farm income and household consumption of home farm products. However, the whole farm net total income plus household consumption figures for AA are the highest in each of the research sites, indicating that AA appears to be a viable economic alternative to CA and MA[1] when all income and consumption factors are included. The observation that AA farmers are the most educated farmer group may help to explain their higher levels of non-farm income, as AA farmers may have more non-farm income opportunities open to them. There may also be a difference in time available for non-farm work between the different farming types. If AA farmers have more time available for non-farm work than CA and MA farmers, this may help to account for the higher levels of AA non-farm income.

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[1] These figures are from the same sources, and calculated using the same formulas as those in Table 2, but first each interviewees data are divided by the total area of their farm (rai) so that the data can be calculated on a per rai basis.

MA net total income plus household consumption figures are the lowest in both cases. This may be partly explained by the fact that the MA farmers have the lowest levels of non-farm income, and they also have high cost levels.

Although the average net farm income and home consumption of household agricultural product figures and the average net total income plus household consumption figures vary at each of the research sites, they were not found to have significantly different means when a t-statistic was estimated at the 1% level. However in most cases some of the variation for the whole farm data can be explained by the differences in farm size (AA being the largest, followed by MA and then CA) as the standard deviation figures in Table 2 are usually higher than those in Tables 3 and 4.

Table 4: MA Data for Income, Consumption and Costs Divided into AA and CA plots (baht/rai) from 1 May 1996 to 30 April 1997[2]

Research site	Village Three, Pong Yang		San Pay Yang, San Lueng	
Agricultural type	MA*	MA+	MA*	MA+
Gross farm income	14406 (12172)	60204 (51160)	6384 (8710)	4198 (4920)
Total costs (excluding labour)	**3012** **(4516)**	**24198** **(26154)**	**1056** **(1584)**	**1243** **(1280)**
Home consumption of household farm products	**1019** **(1241)**	**348** **(831)**	**4441** **(8459)**	**1880** **(3455)**
Net farm income + home consumption of H/H products	**12413** **(9279)**	**36354** **(30679)**	**9769** **(15729)**	**4834** **(4530)**

* = AA plots on MA farms. + = CA plots on MA farms. Standard deviation is in parentheses.

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[1] Only five of the farmers who grew AA produce sold the same AA product to fair trade and conventional organisations. Four of the five farmers stated that they received higher prices from the fair trade organisations, while the remaining farmer stated that a higher price was obtained from selling direct to the consumer. This information was complied using the responses to question 19 in Appendix 1.

[2] These values are from the same sources, and calculated using the same formulas as those in Table 2. However, the figures are on a per rai basis with the data from each AA or CA plot being divided by the area (rai) of that AA or CA plot, respectively.

5.4.4 Total Costs Excluding Labour

The second economic hypothesis is that: AA Costs < MA Costs < CA Costs. Hypothesis 2 examines whether the costs of AA are lower than MA and CA costs. Unfortunately labour costs had to be excluded from total costs due to difficulties and complexities in the collecting of such data, which were found during pretesting, the implications of this are further explained in section 6.3.

The Village Three data (see Table 2) shows that AA whole farm costs (16,615 baht/farm) are less than MA costs (31,832 baht/farm) which are less than CA costs (36,010 baht/farm). On a per rai basis (see Table 3) AA costs (3,692 baht/rai) are under one third of MA costs (12,723 baht/rai), and approximately a quarter of CA costs (14,697 baht/rai). When the MA farms are divided into AA plots and CA plots (see Table 4) the AA costs are the lowest (3,012 baht/rai), and the CA plot costs are the highest overall (24,198 baht/rai).

The total cost results from San Pay Yang and San Lueng (see Table 2 and 3) show that MA has the highest whole farm costs (7,673 baht/farm and 3,160 baht/rai). AA farmers have the second highest whole farm costs (4,795 baht/farm) but the lowest costs per rai (325 baht/rai). CA has the lowest whole farm costs (4,331 baht/farm) but the second highest costs per rai (768 baht/rai). When the MA data are divided into AA plots and CA plots (see Table 4) the AA plot costs are lower (1,056 baht/rai) than the CA plot costs (1,243 baht/rai).

5.4.5 Discussion

The cost data for Village Three, Pong Yang conform to the second economic hypothesis, with AA costs being the lowest, followed by MA and CA costs. When the MA costs are divided into AA plot costs and CA plot costs the latter is the lowest, as expected. The cost data for San Pay Yang and San Lueng are not as clear. When the AA and CA data are calculated on a per rai basis the AA costs are the lowest, as expected, but on a whole farm basis the opposite result is found, due to the larger size of AA farms compared to CA farms. The MA cost data (on a whole farm and area basis) for San Pay Yang and San Lueng is the highest. When the MA costs are divided into AA plots and CA plots the AA plots have the lower costs, as would be expected.

The standard deviation of the total costs excluding labour data is relatively high, but usually falls when the variation associated with the differing farm sizes is included (see Table 2, Table 3 and Table 4). When t-statistics were calculated for each research site, the total costs excluding labour were not found to have significantly different means at the 1% level.

5.4.6 Data from Other Studies

Table 5 provides examples of AA and CA income and cost data from other studies in northern Thailand. The data for AAa and AAc appear to be comparable to AA data from San Pay Yang and San Lueng on a per farm basis (see Table 2) especially when the exclusion of labour costs in the thesis data are considered. The AAa per rai data seem to be more comparable with AA data from Village Three, Pong Yang, on a per rai basis (see Table 3). The data for AAb are very high when compared to the thesis data. The government average northern farm data (Ad) usually falls between the Village Three, Pong Yang and the San Pay Yang and San Lueng data. This indicates that the majority of farmers at Village Three, Pong Yang have above average levels of farm income, and total costs excluding labour and net farm income, whereas the San Pay Yang and San Lueng farmers are below average. The author felt that this was likely to be the case from her own observations. No pattern emerges for non-farm income. Unfortunately data pertaining to home consumption of household farm products were unavailable from the other studies.

Table 5: Other Studies' Data for Income and Costs (baht/farm, unless otherwise stated)

Agriculture	AAa	AAa (baht/rai)	AAb	AAc	Ad
Gross farm income	25200	11200	160000	30000	33267
Total costs*	3000	1333	85000	11000	12259
Net farm income	22200	9867	75000	19000	21008
Non-farm income	-	-	-	-	17277

a = Thowakulphanich, W (1996, pp. 107-121). Case study of organic vegetable and fruit production.
b = Bontuyan, S., et al. (1996, p 22). Case study of integrated vegetable production.
c = Bontuyan, S., et al. (1996, p 22). Case study of organic strawberry farming, not including income from organic vegetables and from organic strawberries that are processed into jam.
d = Office of Agricultural Economics (1997). Table 151: Farm cash income and farm expenses per farm by type and region (Northern), crop year 1991/92. To be directly comparable with the collected data, labour costs were excluded.

5.4.7 Home Consumption of Household Farm Products

The final economic hypothesis is that:

AA home consumption of household farm products >
MA home consumption of household farm products >
CA home consumption of household farm products

This final economic hypothesis examines whether the AA farmers are the most self-sufficient in the production and consumption of farm products, especially food. This hypothesis does not include all the issues associated with self-sufficiency in food, but it is hoped that home consumption of household agricultural products is correlated to self-sufficiency in agricultural products. Although the different types of farmers often grow different crops and rear different types of livestock, it was felt that it would be appropriate to examine the value of home consumption of household farm products. This is because the farmers are able to choose the types of crops and livestock they farm and how much of their agricultural production they consume. However, the data analysis would probably be improved if comparisons between AA, MA and CA farmers who grew the same crop types and reared the same animal types had been possible, as the conditions would have been more controlled.

In Village Three, Pong Yang (see Table 2) the whole farm AA level of home consumption of household farm goods (23,839 baht/farm) is nearly nineteen times higher than the MA level (1,256 baht/farm) and nearly forty-four times higher than the CA value (530 baht/farm). On an area basis (see Table 3), the same pattern emerges, although the larger average AA farm size reduces the magnitude of the differences. When the MA farms are divided into AA plots and CA plots the home consumption of household farm products from the AA plot is the highest (1,019 baht/rai) and the CA plot is the lowest (348 baht/rai), as expected (see Table 4).

The data from San Pay Yang and San Lueng are very different from the data collected in Village Three, Pong Yang. This is because the home consumption of household farm products for MA and CA farmers is higher in San Pay Yang and San Lueng. On a whole farm basis the MA farmers have the highest value of home consumption of household farm products (15,383 baht/farm) followed by CA farmers

(13,946 baht/farm) with AA farmers having the lowest level of consumption (11,898 baht/farm) (see Table 2). On a per rai basis the same ranking occurs (see Table 3). The MA farmers consume more AA household farm products (4,441 baht/rai) than CA household farm products (1,880 baht/rai) (see Table 4).

5.4.8 Discussion

The home consumption of household farm products for Village Three, Pong Yang conforms to the third economic hypothesis (being highest for AA followed by CA and MA). The CA production in Village Three, Pong Yang focuses on strawberry production and flower production, both of which are sold as cash crops. The flowers are not consumed as a food, and so they do not help the farmer achieve household self-sufficiency in food production. The following factors limit the food self-sufficiency that can be achieved by strawberry farming: the strawberries are only harvested at one time in the year; they are not traditional crops, and the villages do not know how to preserve them. The AA vegetable production in Village Three, Pong Yang differs from the strawberry farming and flower production. The vegetable production usually includes many types of vegetables. Most of the vegetable types are familiar foods to the villagers and the vegetables are harvested over a longer time period than the strawberries. These factors may account for the higher home consumption of AA household products in Village Three, Pong Yang.

The situation in San Pay Yang and San Lueng is very different from that in Village Three, Pong Yang. The San Pay Yang and San Lueng data do not conform to the third economic hypothesis, as the MA level of home consumption of household farm products is the highest followed by CA and AA. The CA farmers in San Pay Yang and San Lueng are more traditional than their counterparts in Village Three, Pong Yang, as they usually grow rice and soybeans. Rice is usually grown primarily for household consumption, with any excess being sold. This may explain the high level of home consumption of household CA farm products in San Pay Yang and San Lueng. The AA products, and especially the vegetables and fruits appear, in some cases, to be more like cash crops than their Village Three, Pong Yang AA equivalents. However, the AA plots of the MA farmers are associated with a higher level of home consumption of household farm products than the CA plots.

The standard deviation of the household consumption data is relatively high on a whole farm basis, but it is reduced when calculated on a per rai basis, due to the differing farm sizes (see Table 2 and Table 3). T-statistics for household consumption at both research sites indicate that the means are not significantly different at the 1% level.

5.4.9 Farmers' Economic Comments

The answers from the open ended questions in the questionnaires (see Appendix 1) provided further insights into what the AA and MA farmers thought were the economic benefits and economic problems associated with AA and with the village as a whole. In Village Three, Pong Yang farmers mentioned the benefits of more income, of an output price guarantee and of having reduced household expenditure on food, because of increased home consumption of household farm products. On the negative side they stated that the output prices were low, that the use of nylon netting meant that the investment costs were high and that AA products are risky to grow. Further comments included the feeling that supply might be greater than demand, and that the output purchased by buyers was variable.

Some of the AA and MA farmers in San Pay Yang and San Lueng felt that AA led to higher income levels and that the investment requirements are lower than those of CA. However, others felt that income and output prices are unstable, that the market is uncertain and profit levels are low. Farmers also mentioned the problem of customers not liking the aesthetics of AA produce. Further problems that were stated included a shortage of capital and the transportation problems associated with their mountainous location.

The CA and MA farmers in Village Three, Pong Yang and San Pay Yang and San Lueng mentioned that CA methods result in low and fluctuating output prices, increasing chemical prices and high investment costs. The villagers at Village Three, Pong Yang also added that high land prices were problematic and that CA farming was not risky. The villagers in San Pay Yang and San Lueng disagreed on the differences in income and output levels of CA compared to AA.

Economic problems on a village level included the cost of consumer goods being too high because of the recent devaluation of the Thai baht. Village Three, Pong Yang farmers mentioned insufficient labour as another problem, with some labourers already having agreements to work for other farmers. Some farmers in San Pay Yang and San Lueng mentioned a lack of land titles and high levels of debt as further village economic problems.

Many of the economic problems that the farmers mentioned also have social, and sometimes environmental dimensions. However, the main problems seemed to be volatile input costs and output prices, marketing problems and high investment costs for AA and low income levels for all farmers.

5.4.10 Economic Summary

The economic findings are inconclusive. The first economic hypothesis does not conform to the empirical findings. However AA farming appears to be an economically viable alternative to CA farming in both research sites (when all factors are considered – including home consumption of household farm products, forest products and non-farm income). The data show that MA net total income plus consumption is lowest in Village Three, Pong Yang and in San Pay Yang and San Lueng. These results may be explained by the fact that MA farmers appear to combine high costs, with the lowest level of non-farm income.

The economic data from Village Three, Pong Yang conform to the second and third hypotheses, whereas the data from San Pay Yang and San Lueng do not. The unexpected results may partly be explained by the more traditional nature of the CA farmers in San Pay Yang and San Lueng. The economic comments that the farmers made, added to the understanding of the economic situations in the research areas by providing additional insights into economic issues that had not been addressed in the questionnaires.

5.5 Social Comparisons

5.5.1 Introduction

The main social comparisons that were analysed, using the collected data, focused on education and health issues. Both of these issues are often priorities for improvement within fair trade and AA projects (see sections 2.1.4 and 2.2.5, respectively). Therefore, it is expected that new extension information and new skills will be associated with AA. This expectation is explored in an attempt to find out whether new skills and knowledge are being learnt by AA farmers, and if so, what types of new skills and knowledge are being learnt. AA farmers are also expected to receive more outside extension information and new skills training than CA farmers, due to the AA focus of the extension organisations associated with the research sites (see section 5.2). The farmers were asked to identify their sources of information regarding AA techniques, to see whether the farmers were being provided with new information by the extension organisations. Finally the health, safety and working conditions of AA farmers are anticipated to be better than those of CA farmers.

5.5.2 Extension Information and New Skills

The first *a priori* belief is that AA will result in new extension information and new skills for AA and MA farmers. When the MA and AA farmers were asked if they had gained new skills and knowledge by being involved in AA, all the AA farmers and 93.30 per cent of the MA farmers responded that they had. Table 6 shows the specific new skills and knowledge that the MA and AA farmers learnt. The highest percentage was 78.72 per cent for new farming skills from AA. Quality control skills were second with 61.70 per cent. Marketing ranked third (44.68 per cent), followed by field visits (42.55 per cent), management (25.53 per cent), and finally networking (10.64 per cent).

5.5.3 Sources of Extension Information and New Skills

Table 7 shows the sources of AA extension information and new skills for MA and AA farmers. In Village Three, Pong Yang the government is seen to be the main source (61.91 per cent) followed by self-teaching (33.33 per cent), other farmers[1] (28.57 per cent) and other[2] (14.29). San Pay Yang and San Lueng have a greater number of different sources than Village Three, Pong Yang. The Foundation for Education and Development in Rural Areas (FEDRA) was the main source (69.23 per cent) in San Pay Yang and San Lueng, followed by self-teaching (46.15 per cent), Imboon (42.31 per cent), the government (26.92 per cent), other farmers (15.38 per cent) and other (7.69 per cent).

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[1] Other farmers are those farmers who already practice the type of farming methods which are being learnt. The respondents can therefore learn through observations and discussions with the experienced farmers.

[2] The other category includes sources such as farming magazines.

Table 6: New AA skills learnt by AA and MA farmers (percentage of farmers reporting that they have learnt the following new skills and knowledge by being involved with AA)[1]

Site	Village Three in Pong Yang		San Pay Yang, San Lueng		All
Type	MA	AA	MA	AA	**Average**
Farming	73.68	50.00	80.00	87.50	**78.72**
Quality Control	42.10	100.00	70.00	75.00	**61.70**
Marketing	36.84	50.00	30.00	62.50	**44.68**
Field visits	21.05	100.00	30.00	68.75	**42.55**
Management	26.32	50.00	20.00	25.00	**25.53**
Networking	5.26	50.00	0	18.75	**10.64**

* The averages were weighted by the number of farmers practising MA and AA at each location.

Table 7: Source of AA extension information and new skills (percentage of farmers reporting that they learnt their AA techniques from the following sources)[2]

Site	Village Three in Pong Yang			San Pay Yang, San Lueng		
Type	MA	AA	**Average***	MA	AA	**Average***
Self-taught	36.84	0	**33.33**	40.00	50.00	**46.15**
Government	63.16	50.00	**61.91**	30.00	25.00	**26.92**
FEDRA	0	0	**0**	50.00	81.25	**69.23**
Imboon	0	0	**0**	40.00	43.75	**42.31**
Other farmers	26.32	50.00	**28.57**	30.00	6.25	**15.38**
Other	15.79	0	**14.29**	20.00	0	**7.69**

* The averages were weighted by the number of farmers practising MA and AA at each location.

Table 8 shows the sources of CA extension information and new skills for MA and CA farmers. The averages show that self-teaching is the main source (78.68 per cent), followed by other farmers (29.51 per cent), the government (26.23 per cent) and other (18.03 per cent).

The difference in outside extension advice and skill teaching between CA and AA is apparent, with greater levels of support from organisations involved in AA farming compared to CA farming. This result was expected due to the emphasis on AA extension at the research sites (for more details on the extension advice provided by the organisations involved with the research sites see section 5.2).

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[1] Data obtained from answers to question 34, see AA and MA questionnaires in Appendix 1.

[2] These data are from responses to question 33 in the AA and MA questionnaires (see Appendix 1).

Table 8: Source of CA extension information and new skills (percentage of farmers reporting that they learnt their CA techniques from the following sources)[1]

Site	Village Three in Pong Yang		San Pay Yang, San Lueng		All
All	MA	CA	MA	CA	Average
Self-taught	73.68	80.00	70.00	91.66	78.68
Other farmers	15.79	30.00	30.00	50.00	29.51
Government	21.05	20.00	30.00	41.66	26.23
Other	21.05	15.00	20.00	16.67	18.03

5.5.4 Health, Safety and Working Conditions

The second *a priori* belief associated with the social effects of AA is that the health, safety and working conditions of AA are better than those of CA. Figure 6 shows an example of the risks associated with CA. The farm worker can be seen to be applying artificial agricultural chemicals with no protective clothing for either his legs or his face. Inadequate protection can lead to health problems for the chemical applier (Rola and Pingali, 1993).

The majority of MA and AA farmers (93.62 per cent) felt that their health and safety were better since they had become involved with AA, 2.13 per cent believed it had remained the same and 4.25 per cent did not know[2]. 95.74 per cent of the MA farmers and all the AA farmers said that they had changed from CA to AA for health reasons[3]. The majority of the MA and AA farmers (91.50 per cent) also felt that their working conditions were better since they had become involved with AA, 4.25 per cent thought they had remained the same, 2.13 per cent did not know and 2.13 per cent thought they had worsened[4].

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[1] These figures are from the answers to question 30 in the CA questionnaire and question 33 in the MA questionnaire (see Appendix 1).

[2] These figures are from the answers to question 29 in the AA and MA questionnaires (see Appendix 1).

[3] Data from the responses to question 28 in the AA and MA questionnaires (see Appendix 1).

[4] This information is from replies to question 44 in the AA and MA questionnaires (see Appendix 1).

Figure 6: Photograph of Farm Worker Applying Artificial Chemicals Without Protection to CA Strawberries in Village Three, Pong Yang

Photograph credit: M. Renner

All the farmers were asked if they personally knew anyone who has become ill from using agricultural chemicals. Fifty per cent said that they did know such people, 46.25 per cent said that they did not, and 3.75 per cent were unsure[1]. Unfortunately documented data costs of illness resulting from the application of artificial agricultural chemicals in the research sites were unavailable, and time did not allow for their collection.

5.5.5 Farmers' Social Comments

In the open ended questions in the questionnaires (see Appendix 1) 72.34% of the MA farmers and 61.11% of the AA farmers stated that AA farming had improved their lives and health, the lives and health of their families and/or the lives and health of the villagers. Some stated that their health was better, not only in physical terms, but also mentally, with less quarrelling, less tension, more freedom and better moods. Some villagers also mentioned the health benefits associated with eating AA vegetables that they had produced, and being able to supply AA vegetables to consumers.

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[1] Data were obtained from AA question 34, CA question 29 and MA question 32 (see Appendix 1).

In contrast, 82.98% of the MA farmers and 84.37% of the CA farmers stated that CA farming had led to a worsening in their lives and health, the lives and health of their families and/or the lives and health of the villagers. Some of the CA farmers mentioned that they felt weak and suffered from headaches, vomiting, itches, dizziness and allergic reactions as a result of using artificial agricultural chemicals. Mental health problems were stated. These included anger, bad moods, worry and not feeling satisfied. Interviewees in San Pay Yang and San Lueng also mentioned the health threats posed by malaria and drug abuse.

Farmers in Village Three, Pong Yang felt that AA methods were easy to practice. However, the Village Three, Pong Yang AA vegetable group restricted the farmers' freedom to decide which crops they would grow, as the group had to first reach agreement on this issue. The San Pay Yang and San Lueng interviewees also mentioned group problems, with some people having disagreements as to the techniques of AA. These interviewees also disagreed as to whether AA meant that they had more time to spend with their family.

Another social problem that was mentioned at both the research sites was stealing. A social problem that was specific to Village Three, Pong Yang was artificial agricultural chemical use causing a bad smell, which had led to complaints from some villagers. In San Pay Yang and San Lueng interviewees mentioned a further problem; that many of the young people in the area had not been able to find jobs, so they had migrated to the cities to work, but at the same time people stated that there was not enough farm labour. However the stigma associated with manual work, may explain this discrepancy. On the positive side, the San Pay Yang and San Lueng villagers mentioned that the area was being more developed because of the AA project.

5.5.6 Social Summary

The results show that AA is associated with the learning of new skills (the first social *a priori* belief). AA also has a greater number of outside organisations involved with extension information and new skills training than CA. The majority of MA and AA farmers indicated that their health, safety and working conditions were better when AA was practised in comparison to CA (the second social *a priori* belief). The majority of the CA farmers felt that CA farming resulted in worsening health and life conditions. The social comments from the farmers helped to support these findings, as well as providing a greater description of the social issues.

5.6 Environmental Comparisons

5.6.1 Introduction

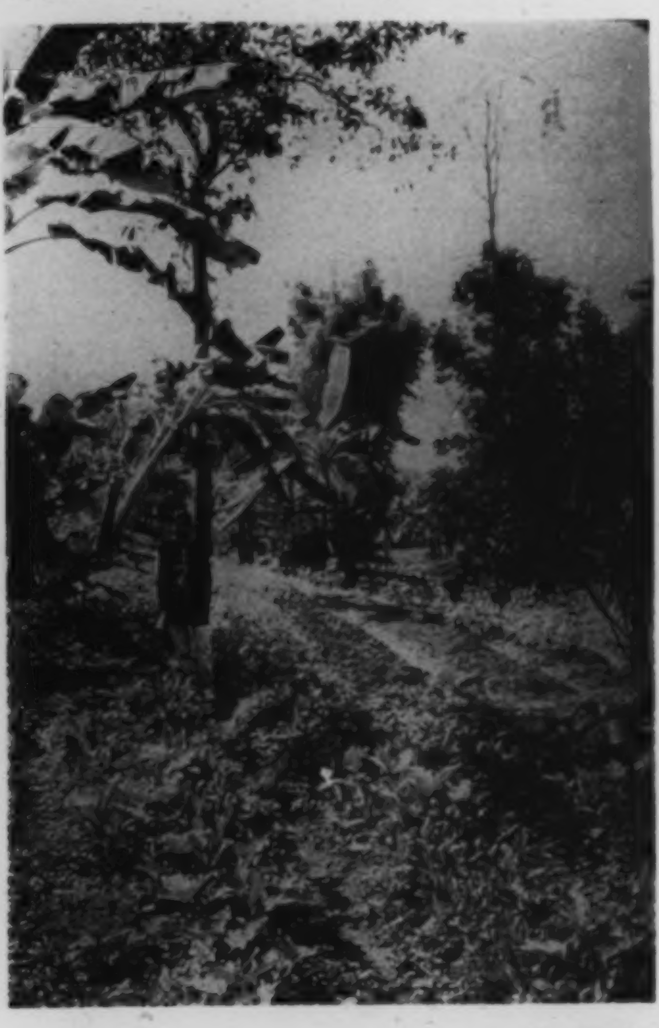
This section focuses on integration and biodiversity, and the use of artificial agricultural chemical and their alternatives. AA farmers are expected to grow a greater number of different crops and rear a larger number of different types of livestock than MA farmers, followed by CA farmers. AA is also thought to use less artificial agricultural chemicals than MA, which in turn uses less than CA, but AA is expected to use more alternatives to these products than MA, followed by CA. Finally, wildlife quality and variety are believed to be higher when AA is practised than when CA methods are used.

5.6.2 Biodiveristy of Farming

The first *a priori* belief concerning the effects of AA on the environment is that AA is more integrated than MA, followed by CA. Figure 6 shows an example of strawberry monocropping at a conventional farm in Village Three, Pong Yang. In Figure 7, the integrated and alternative farming of different fruit trees and different vegetables at San Pay Yang and San Lueng shows greater biodiversity than that in Figure 6. Table 9 confirms that AA is more integrated than MA, which in turn is more integrated than CA.

The average number of AA crops grown at Village Three, Pong Yang is 6.50, compared to 6.21 by MA farmers (of which 3.79 are crops grown under AA and 2.42 are crops grown under CA) and compared to only 2.10 different crops grown by CA farmers. The CA and MA farmers at Village Three, Pong Yang raise livestock, whereas the AA farmers do not. Even so, AA at Village Three, Pong Yang still has the highest level of diversity of production (6.50), followed by MA (6.36) and then CA (2.20).

Figure 7: Photograph of AA Integrated Farming at San Pay Yang



Photograph credit: M. Renner

The AA farmers at San Pay Yang and San Lueng are also the most diverse, with on average 8.68 different types of crops and 1.42 different types of livestock. The MA farmers have 6.40 different types of crops (of which 3.70 are grown under AA and 2.70 are grown under CA), and 1.10 different types of livestock (of which 0.20 are kept reared under AA methods, and 0.90 are reared using CA methods). The CA farmers at San Pan Yang and San Lueng grow an average of 2.15 different types of crops and rear an average of 0.68 different types of livestock.

The farmers at San Pay Yang and San Lueng are more diverse than those at Village Three, Pong Yang, in both crop and animal production. The most popular AA crop was vegetables at both research sites. The most popular CA crop at Village Three, Pong Yang was flowers, whereas at San Pay Yang and San Lueng it was soybeans. The most popular livestock reared at both research sites was chickens.

Table 9: Average number of different crops grown and different livestock reared by the questionnaire respondents from 1 May 1996 to 30 April 1997[1]

Site	Village Three in Pong Yang					San Pay Yang, San Lueng				
Type	AA	MA*	MA+	MA	CA	AA	MA*	MA+	MA	CA
Vegetable[2]	5.50	3.79	0.05	3.84	0.05	5.31	2.70	0.70	3.40	0.50
Fruit[3]	1.00	0	0.32	0.32	0.70	2.37	0.60	0.50	1.10	0.08
Rice	0	0	0.05	0.05	0.05	0.69	0.30	0.50	0.80	0.67
Soybean	0	0	0	0	0	0.19	0	0.90	0.90	0.82
Corn	0	0	0	0	0	0.06	0.10	0	0.10	0
Holland Beans	0	0	0	0	0.05	0	0	0	0	0
Groundnut	0	0	0	0	0	0.06	0	0	0	0
Flowers[4]	0	0	2.00	2.00	1.25	0	0	0	0	0
Tea	0	0	0	0	0	0	0	0	0	0.08
Tobacco	0	0	0	0	0	0	0	0.10	0.10	0
All Crops	**6.50**	**3.79**	**2.42**	**6.21**	**2.10**	**8.68**	**3.70**	**2.70**	**6.40**	**2.15**
Chicken	0	0	0.10	0.10	0.10	0.62	0.20	0.30	0.50	0.33
Pigs	0	0	0	0	0	0.25	0	0.50	0.50	0.08
Buffalo	0	0	0	0	0	0.06	0	0	0	0
Cattle	0	0	0	0	0	0.12	0	0.10	0.10	0
Fish	0	0	0.05	0.05	0	0.37	0	0	0	0.27
All Animals	**0**	**0**	**0.15**	**0.15**	**0.10**	**1.42**	**0.20**	**0.90**	**1.10**	**0.68**
Total	**6.50**	**3.79**	**2.57**	**6.36**	**2.20**	**10.1**	**3.90**	**3.60**	**7.50**	**4.98**

* = AA plots on MA farms. + = CA plots on MA farms.

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[1] These figures come from the responses to questions 8 and 9 in Appendix 1.

[2] The types of vegetables that the farmers grew included traditional Thai vegetables, Chinese vegetables and temperate vegetables.

[3] The AA farmers and the CA farmers from San Pay Yang and San Lueng mainly grew traditional fruits, such as mangoes, banana and papaya, whereas the CA farmers in Village Three, Pong Yang mainly grew temperate strawberries.

[4] The CA farmers in Village Three, Pong Yang grew temperate flowers such as roses, lilies and chrysanthemums.

5.6.3 Discussion

AA is seen to be the most integrated, followed by MA and finally CA. This result was anticipated by the first environmental *a priori* belief. However, it was not expected that the diversity of livestock production at Village Three, Pong Yang would not conform to this *a priori* belief. This unexpected result could be accounted for by the fact that the government extension organisation at Village Three, Pong Yang focuses on AA crop production rather than AA animal production. There may be managerial constraints and economies of scale that limit the number of different types of livestock and crops that can be farmed. Village level constraints are also likely to influence the level of integration. These village level constraints may include soil type, climate and distance from markets.

5.6.4 Use of Artificial Agricultural Chemicals and Artificial Fertilisers

The second environmental *a priori* belief is that the use of artificial agricultural chemicals and artificial fertilisers in AA is lower than MA, which will be lower than CA. Table 10 shows the use of artificial agricultural chemicals and artificial fertilisers by the farmers. Each farmer was asked about the type and number of different artificial products they applied. Due to the complexity of many of the farms and the often inadequate ingredients list on the chemical containers the ingredients and amount of the artificial chemicals applied was unfortunately too difficult to obtain. Even so, it will be assumed that the larger the number of different artificial products applied the greater are the associated environmental and health risks.

The AA farmers from San Pay Yang and San Lueng use the lowest number of artificial agricultural chemical and artificial fertiliser products. Only one farmer from this group used any artificial products, and the only product used was an insecticide. The AA farmers from Village Three, Pong Yang used an average of three different artificial products each, with fertilisers, insecticides and fungicides being applied. The AA plots of the MA farmers from San Pay Yang and San Lueng used an average of 0.40 artificial products each, with fertiliser being the only product applied. The AA plots of the MA farmers in Village Three, Pong Yang had an average of 1.42 artificial products applied, these products being fertiliser, insecticide, fungicide and rodenticide. The AA products from San Pay Yang and San Lueng have a much smaller number of different artificial products applied than those of Village Three, Pong Yang.

The CA farmers were also found to apply more artificial products at Village Three, Pong Yang than at San Pay Yang and San Lueng. CA farmers at Village Three, Pong Yang applied an average of 7.75 different artificial products that included fertilisers, insecticides, herbicides, growth hormones, fungicides, rodenticides, mollusicides and two unknown products. CA farmers at San Lueng and San Pay Yang applied an average of 3.75 products including fertilisers, insecticides, herbicides and fungicides. The CA plots of the MA farmers at Village Three, Pong Yang were applied with an average of 7.24 different products with the types being the same as those for the CA farmers. The CA plots of the MA farmers at San Pay Yang and San Lueng applied an average of 3.10 artificial chemicals that included fertilisers, insecticides, herbicides, growth hormones, fungicides and unknown products.

Table 10: Average number of artificial chemical and fertiliser products used by farmers from 1 May 1996 to 30 April 1997[1]

Site	Village Three in Pong Yang				San Pay Yang, San Lueng			
Type	AA	MA*	MA+	CA	AA	MA*	MA+	CA
Fertiliser	1.50	1.00	1.73	1.90	0	0.40	1.00	1.08
Insecticide	1.00	0.05	1.68	1.75	0.06	0	0.30	0.33
Herbicide	0	0	2.21	2.00	0	0	1.00	1.17
Growth hormone	0	0	0.26	0.20	0	0	0.10	0
Fungicide	0.50	0.32	1.21	1.60	0	0	0.60	1.17
Rodenticide	0	0.05	0.05	0.10	0	0	0	0
Mollusicide	0	0	0.05	0.10	0	0	0	0
Unknown	0	0	0.05	0.10	0	0	0.10	0
Total	**3.00**	**1.42**	**7.24**	**7.75**	**0.06**	**0.40**	**3.10**	**3.75**

* = AA plots on MA farms. + = CA plots on MA farms.

It was obvious to the author that some farmers were unaware of the purpose and danger of some of the artificial agricultural chemicals that they were applying. This is very worrying, as unnecessary health and environmental risks, as well as unnecessary costs inevitably will occur. For example, chemical products are sometimes left unattended in the field. They not only pose a risk to children and animals, but also to the environment if spills or leakages occur.

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[1] These data are from the replies to question 10 in Appendix 1.

5.6.5 Use of Alternatives to Artificial Agricultural Chemicals and Artificial Fertilisers

Table 11 shows the alternatives to artificial agricultural chemicals and artificial fertilisers that are used by the farmers. It is assumed that these are less environmentally damaging and less dangerous in terms of risks to human health, than their artificial equivalents, although data concerning the different levels of toxicity are unavailable.

It was found that the farmers at Village Three, Pong Yang, in all cases except that of the AA plots of MA farmers, applied more alternative products than the farmers at San Pay Yang and San Lueng. The same results were found with the application of artificial products. This indicates that the Village Three, Pong Yang farmers are farming in a more intensive manner, as would be expected due to their smaller farm size (see Table 1).

Table 11: Average number of AA products and alternative fertilisers used by farmers from 1 May 1996 to 30 April 1997[1]

Site	Village Three in Pong Yang				San Pay Yang, San Lueng			
Type	AA	MA*	MA+	CA	AA	MA*	MA+	CA
Manure	1.50	0.84	0.36	0.75	0.69	1.00	1.00	0.42
Compost	0.50	0.05	0	0.10	0.56	0.30	0	0.08
Neem	0.50	0.37	0	0.05	0.12	0.20	0.10	0
Soya shell	0	0	0	0	0.06	0	0	0.17
Sticky glue	0	0.05	0	0	0	0	0	0
Bacteria	0	0.05	0	0	0	0	0	0
AA G.H.	0	0.05	0	0	0	0	0	0
Total	**2.00**	**1.41**	**0.36**	**0.80**	**1.43**	**1.50**	**1.10**	**0.67**

* = AA plots on MA farms. + = CA plots on MA farms. G.H. = growth hormone.

The AA farmers at Village Three, Pong Yang applied an average of two alternative products that included manure, compost and neem (a plant based alternative to insecticide). The AA farmers at San Pay Yang and San Lueng applied an average of 1.43 alternative agriculture products including manure, compost, neem and soybean shells. The AA plots of the MA farmers at Village Three, Pong Yang were treated with an average of

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[1] These figures are from the responses to question 10 in Appendix 1.

1.41 alternative products. These farmers applied the widest range of types of alternative products, including manure, compost, neem, sticky glue, bacteria and an AA growth hormone[1].

The MA farmers from San Pay Yang and San Lueng applied an average of 1.50 alternative agriculture products including manure, compost and neem. The CA farmers from Village Three, Pong Yang applied an average of 0.80 alternative products, these products were manure, compost and neem. The CA farmers from San Pay Yang and San Lueng applied an average of 0.67 alternative agriculture products including manure, compost and soya shells (a by-product from soybeans). The CA plots of the MA farmers of Village Three, Pong Yang were applied with manure, with an average of 0.36 alternative products being applied. The CA plots of the MA farmers at San Pay Yang and San Lueng applied manure and neem, with an average of 1.10 alternative products being applied.

5.6.6 Discussion

The AA farmers, especially those at San Pay Yang and San Lueng, were not supposed to use any artificial agricultural chemicals or artificial fertilisers, but this was not the case. Even so, the AA farmers were found to use fewer types of artificial agricultural chemicals and fewer AA farmers applied artificial fertiliser than the MA and CA farmers, as expected by the second environmental *a priori* belief. The opposite pattern emerged when the use of AA products and alternative fertilisers was analysed, again, as predicted. Unfortunately data concerning the amount of agricultural inputs applied per rai were too difficult to collect. This was due to factors including differing brand names that did not indicate the active ingredients, and farmers not knowing the quantity of inputs they had applied. The lack of knowledge concerning the storage, application and health risks of artificial products was a very worrying observation (for further details on problems associated with the supply and use of artificial agricultural chemicals in Thailand see Jungbluth, 1996).

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[1] Sticky glue, bacteria and AA growth hormones are all innovation alternatives to artificial agricultural chemicals. Whereas manure, compost and neem are traditional agricultural inputs.

5.6.7 Wildlife Quantity and Variety

The final environmental *a priori* belief is that wildlife quantity and variety increases with AA practices, and decreases with CA methods. When all the farmers were asked whether they had noticed any changes in the total amount of wildlife within their village boundary since the introduction of artificial agricultural chemicals[1] 65.82 per cent of farmers said that the total amount had decreased. 16.45 per cent of farmers said that the total amount had stayed the same, 5.06 per cent said that the total amount had increased, 7.59 per cent did not know and 5.06 per cent did not answer the question. When asked if the variety of wildlife within the village boundary had changed, almost identical answers were given. 63.29 per cent believed there was a decrease, 17.72 per cent felt it had remained the same, 5.06 per cent said there had been an increase, 8.86 per cent did not know and 5.06 per cent did not answer the question.

AA and MA farmers were asked about the total amount and variety of wildlife within the village boundary since the introduction of AA methods. 51.06 per cent of farmers indicated that they thought that the total quantity of wildlife had increased, 38.29 per cent felt it had stayed the same, 8.51 per cent did not know and 2.13 per cent did not answer the question. Again, the answers concerning the variety of wildlife were very similar – 48.94 per cent saw an increase, 40.42 per cent saw no change, 2.13 per cent did not know and 8.51 per cent did not answer the question.

5.6.8 Discussion

The wildlife variety and quantity data are as expected from the third *a priori* belief. Many of MA and AA farmers believe that the quantity and variety of wildlife within the village boundary have increased since the introduction of AA methods, whereas the majority of respondents stated that the introduction of artificial agricultural chemicals had led to a decrease in wildlife. The fact that more interviewees believed that CA farming had reduced the wildlife quantity and variety, than that AA had increased the wildlife quantity and variety, may be explained by the number of years that each farming method has been practised. CA at Village Three, Pong Yang has been practised for an average of

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[1] These data were from the answers to AA and MA question 30, CA question 27 in Appendix 1.

10.63 years, and at San Pay Yang and San Lueng for an average of 11.91 years. Whereas AA has been practised for an average of 2.36 years by MA farmers and for an average of 7.50 years by the AA farmers at Village Three, Pong Yang. At San Pay Yang and San Lueng MA farming has been present for an average of 4.16 years and AA farming has been practised far an average of 6.125 years[1]. Therefore the effect of AA farming on the quantity and variety of wildlife may not have been adequately observed and/or completed.

5.6.9 Farmers' Environmental Comments

In the opened ended questions in the questionnaires (see Appendix 1), some of the farmers made further environmental comments. For example, the interviewees who practice CA methods frequently stated that the use of artificial agricultural chemicals resulted in pollution of the water, air and soil, with disease and death in fish and a loss of birds and plants. The problem of insects gaining increasing immunity to the artificial agricultural chemicals was also mentioned. None of the farmers mentioned any environmental benefits of CA farming.

Farmers practising AA frequently mentioned the insect problems associated with AA. However, they also mentioned that the environment was better, with more birds and plants, an improved biological balance and better soil. In Village Three, Pong Yang fungus was also mentioned as a problem, and in San Pay Yang and San Lueng poor seed quality was cited.

Village environmental problems stated included garbage, insufficient water and noise pollution from vehicles and air. Environmental problems that were specific to Village Three, Pong Yang were cold weather, forest degradation and air pollution from the burning of the forest and garbage.

5.6.10 Environmental Summary

All of the environmental *a priori* beliefs were supported by the data. Integration was found to be highest for AA, then MA and finally CA farms. The use of artificial agricultural chemicals was highest for CA, then MA, followed by AA farmers. The opposite was found to be the case in terms of alternatives to artificial agricultural products. Further environmental comments from the farmers helped to support these findings, and to explain other environmental issues that were not part of the questionnaires.

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[1] Many of the AA farmers practiced CA farming in the past. Before the introduction of the Green Revolution technologies and inputs, the farmers in this area had practiced traditional agriculture methods.

5.6.11 Choice of Farming Methods

A brief discussion of some of the reasons stated by MA and CA farmers for their choice of farming methods is given in the hope that it will provide more of an insight into the decision of whether to practise AA or CA[1].

Some MA and CA farmers stated that they had not converted their whole farm to AA because the market is dynamic, and by growing both AA and CA products risk can be reduced through diversification. AA market, price and income uncertainty, lower AA output, poor quality AA produce (due to damage from insects and disease) and the slower growth rate of AA crops were also mentioned. One MA farmer explained that the AA orders were small and that only enough AA products to fulfil the orders were grown.

The problem of not being able to grow strawberries and flowers (the main CA crops in Village Three, Pong Yang) under nylon netting, and the fact that the government seemed to have run out of subsidised nylon netting were further limitations cited. Some farmers believe that if artificial agricultural chemicals are used by their neighbours they too had to use these products, if they did not want their crops to be destroyed by insects.

The lack of information, extension advice and experience, as well as the time involved in being a part of the Village Three, Pong Yang AA vegetable group were other reasons for the CA farmer's choice.

These comments not only help in explaining the farmers' choice of farming method/s, they also point to some issues that the extension and marketing organisations may be able to address. For example, further AA extension training for CA farmers who have so far received no information should help to overcome some of the problems mentioned.

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[1] These data are from the responses to CA question 26.3 and MA question 28.2 (see Appendix 1).

5.6.12 Summary

This chapter has provided a description of the chosen research sites, an outline of the extension and marketing organisations involved with AA and the results of the data collected from the questionnaires and informal interviews.

Chapter 6: Summary, Conclusions and Recommendations

6.1 Findings of the Study

Objective (a) of the research led to a description of some of the alternative agriculture (AA) and fair trade projects that are currently underway in northern Thailand (see section 5.1). It was found that there are a number of different organisations involved with alternative agriculture, which uses fair trade principles, in northern Thailand and throughout the whole country. The non-governmental organisations (NGOs) were found to be more established than their government counterparts. These NGOs also appeared to be more involved in networking (both in Thailand, and internationally - through communications, meetings, conferences and the International Federation of Organic Agriculture Movements), than the government organisations. However, the number of farmers who actually practice AA is still minimal, but appears to be growing.

None of the extension and marketing organisations involved in the AA projects are financially self-sufficient, as they all receive funding from government revenue and/or charitable donations. This indicates that, depending on the level of support and subsidies that these organisations provide to the farmers, the future of AA, which is sold using fair trade mechanisms, may be placed in jeopardy if the outside funding sources become inadequate. AA organisations and AA farmers should not become financially dependent on outside support if they want to survive in the long run. The fact that the AA fresh vegetable and fresh fruit sector of the Imboon Center are currently running at a financial loss (Bontuyan, Yaimuang, Oungsomwang & Ngamnittayapong 1996) is also very worrying.

The development approach of the Foundation for Education and Development in Rural Areas (FEDRA) may be inappropriate, as there are indications that it may be leading to dependency rather than self-reliance (see section 5.2.10 for further details). A further problem at FEDRA is the AA pricing. The very low prices that the AA producer and seller independently chose to charge the author for AA products was worrying. Even though the seller was self-empowered, through her independent pricing of the AA products, the use of this self-empowerment to undercharge for the costs and labour time involved raises the question of whether the trade was fair. This problem may be addressed and overcome using extension services to appropriately educate producers and further marketing to raise the awareness of consumers.

The NGOs are stricter in their definitions and approaches to AA when compared to the government organisations involved. However, the NGOs may possibly be too idealistic if the MA farmers they are involved with are growing AA and CA crops on the same plots, in different seasons, even though they should not be, according to the NGO criteria. The NGOs may need to rethink some of their approaches, and further consult with farmers as to how these problems can be resolved.

Labelling and certification, by NGOs and government organisations, exists for AA and 'chemical safe' products in northern Thailand. The labelling, certification and understanding of the concepts of fair trade were not found to be as advanced as that of AA or 'chemical safe' products. The government may need to address some of the uncertainty surrounding its choice of 'chemical safe' production and labelling, and to clarify what 'chemical safe' means.

Objective (b) of the thesis was to examine the effects of AA, that uses fair trade principles, on the producers, in terms of economic, social and environmental changes to their lives. This multidisciplinary approach was important in allowing a broad understanding of the impacts on the producers.

The first economic hypothesis (net farm income and home consumption of household farm products is greatest for AA, followed by MA, and then CA) could not be supported using the collected data. However, with the addition of non-farm income and forest resources AA farmers were found to have the highest whole farm levels of net income plus household consumption, followed by CA and then MA farmers at both research sites; but none of the means were significantly different. Although AA farming was found to be economically viable on a whole farm basis, the fact that the average farm size was highest for AA farmers, and that the organisations involved with AA receive outside funding must also be considered.

The larger average farm size associated with AA raises the question of whether there is a minimum farm size at which AA can be practised, since AA has the lowest average level of net farm income plus home consumption of household farm products on a per rai basis. If a minimum farm size is required for the AA techniques then the problems of land shortages, at Village Three, Pong Yang in particular, may indicate that AA will not have a viable long-term future unless population pressure and land hunger do not continue to increase. The smaller CA farms may need to be more intensive and use artificial agricultural chemicals to earn a sufficient level of whole farm income, and therefore a higher income level on a per rai basis than MA and AA farmers (as was found to be the case in the Village Three, Pong Yang data). CA farmers who have small farms may be economically unable to convert to AA.

The total cost data, excluding labour, for Village Three, Pong Yang conformed to the second hypothesis (AA has the lowest cost level, followed by MA and then CA). The San Pay Yang and San Lueng data were not as expected. However, none of the mean total cost figures for AA, MA and CA were found to be significantly different at the different research sites.

Household consumption figures were found to be important, and were highest for AA, then MA and finally CA farmers in Village Three, Pong Yang, as was expected by the third economic hypothesis. The data from San Pay Yang and San Lueng did not conform to this hypothesis. This was partly due to the more traditional and self-sufficient nature of the CA farmers at San Pay Yang and San Lueng, compared to those from Village Three, Pong Yang. However, none of the means of the home consumption of household farm products were found to be significantly different at each of the research sites.

The social data supported the social *a priori* beliefs. These data suggested that new skills and greater extension information were available for AA producers, when compared to CA farmers. The majority of farmers indicated that the health, safety and working conditions of AA were better than those of CA.

The first *a priori* environmental belief was supported on a total farm basis. However, the environmental data indicated that AA was usually associated with a greater number of different crops, but not a greater number of livestock types, compared to MA and CA. The second and third environmental *a priori* beliefs were supported by the data. AA farmers were found to apply the lowest number of artificial agricultural chemicals and artificial fertilisers, and a higher number of alternatives to these products, compared to MA and CA farmers. Some of the AA farmers at San Pay Yang and San Lueng were found to apply artificial agricultural products, even though they were not supposed to.

Objective (c) was to provide an outline of the trade-off and possible synergy between the concepts and practical applications of alternative agriculture, fair trade and development that is human, appropriate and sustainable. Although this objective has not been directly addressed, it has been touched on indirectly. The author believes that the concepts and practice of AA, fair trade and development that is human, appropriate and sustainable produces synergy, in terms of promoting similar aims, such as local self-reliance, and environmental, social and economic improvements. The fact that the majority of the trade in the AA fairly traded products occurred at the sub-district or provincial level indicates that the environmental problems associated with using non-renewable fossil fuels to transport the products over a long distance did not occur. However, certain trade-offs were also apparent. For example, the need to provide higher (fair trade) prices in a relatively new niche market is not only stretching the managerial resources of the organisations involved, but is also turning away some consumers, who are unable to afford the higher prices, even if they value the additional attributes resulting from AA and fair trade.

6.2 Recommendations

The many different definitions of AA and ‘chemical safe’ products in Thailand are likely to confuse many consumers. Therefore, clearer and more consistent definitions of AA are likely to be advantageous to consumers, producers and traders. A more unified and national approach to labelling and certification of AA products by the NGO sector, in particular, is recommended. Fair trade was found to be rarely mentioned on the labels of AA products, and this could be changed. However, the concept of fair trade may be alien to the majority of Thais, and the appropriateness of such an approach must first be assessed.

Although there appears to be a lot of co-operation among the different NGOs involved with AA in the north of Thailand, the author felt that the co-operation between the NGOs and the government sector could be improved upon. Co-operation amongst different government departments could also be increased.

The author observed a lack of access to accurate and unbiased information concerning artificial agricultural chemicals. There is a need for better understanding of how the appliers of chemicals can adequately protect themselves, their environment and the consumers of their products. Health and environmental problems could be addressed through education, the use of protective clothing, stricter artificial agricultural chemical labelling requirements, and improvements in artificial agricultural chemical application techniques.

The problems of National Park and forest encroachment are important issues for both of the research sites, and especially for Village Three, Pong Yang where land is very limited. The use of approaches, such as community forests (Puntasen, 1997), could enable villagers to gain empowerment with which to utilise and value their surrounding forest areas without having to resort to deforestation. The forest preservation and overall environmental situation of the areas would then be likely to improve.

6.3 Limitations

Problems of small sample size, the risk of subjectivity (Fernandez, 1989) and development arising from variables other than the imposition of the AA and fair trade projects may have led to biases in the interpretation and conclusions of the collected data and results.

Classification of some farms was challenging, and there were not as many AA farmers as the author had expected so it was very difficult to find a sufficient sample number, especially in Village Three, Pong Yang. Some of the interviewees had very complicated farming systems and this caused problems in data collection. One such case is the woman who stated that she "grew everything but cabbages". Ideally the AA, MA and CA farmers would have all been growing the same crops and rearing the same types of livestock so that the comparisons could have been more controlled.

The problems of lower yields and incomes associated with the transitional period of changing from AA to CA (see section 2.2.4) may have skewed the results if some of the AA farmers were in this transitional stage during data collection. The fact that the strawberry and flower production at Village Three, Pong Yang was supposedly Integrated Pest Management (IPM) may also have distorted the results.

Translation and language limitations are likely to have effected the research. For example, the concept of sustainability was hard to translate into Thai and it is a concept that may not be easily understood by the interviewees. The use of different interviewers may have resulted in biases. The author realises that many of the concepts and valuation approaches that she used had her own Western biases and may not have always been appropriate in a Thai context.

Many of the farmers are likely to have had problems estimating their income and cost levels, especially as they do not usually record their farm accounts. Their estimations are unlikely to be accurate (Prompunya, 1997). In some cases, such as free-range chickens, the farmers stated that they had no costs. Although the costs to the farmers might have been virtually non-existent (i.e. they believe that crop residues cost them nothing), it is likely that costs are still involved. Additional benefits and costs from crops and livestock may have sometimes been omitted, for example, the non-market value of cocks that participate in cock fights. Valuation of items such as home consumption of household farm production and forest products were also difficult.

The exclusion of data collection regarding the barter and exchange economies is likely to have distorted the data as they are particularly important in San Pay Yang and San Lueng (Prompunya, 1997). Exchange labour is also important in Village Three, Pong Yang.

The exclusion of labour from total cost may have distorted the data and excluded a very important aspect of well-being. For example, it may be that AA farmers require more labour to control weeds manually, than CA farmers who use artificial agricultural chemicals to control weeds. If this is the case then the labour costs of the AA farmers may be higher than those of the CA and AA farmers. The AA farmers may also have less free time and may therefore have a lower quality of life than their CA and MA counterparts.

Further limitations include the fact that the interviewees may not have answered the interviewers' questions correctly if they did not know them (Prompunya, 1997).

Although the interviewers and the author were usually formally introduced to the farmers, this introduction may have been inadequate to gain the villagers' trust and may have reduced the quality of the data. The problem of omissions in the data collection sometimes occurred, making it difficult to collate certain responses.

Unfortunately, time did not allow for further interviews with government officials and hired labourers that would have increased the author's understanding of the issues.

Lack of time, equipment and expertise in the collection of the environmental data in particular, meant that some measurements, such as those for biodiversity, were not as scientific as they could have been. The use of more time consuming methods of data collection, including time allocation studies of the farmers, may have improved data collection, especially in terms of labour.

Finally, a cross-sectional approach to data collection, at a single moment in time, is likely to have limited the understanding of some of the economic, social and environmental effects of AA, MA and CA. A cross-sectional approach was chosen due to the relatively short time available for data collection. However, a longitudinal study may have revealed further details. For example, farmers' knowledge of new agricultural methods is likely to increase over time, leading to improvements in management and yield. The collected data were unable to show if this occurred. This may have caused bias in the AA data in particular, due to the relatively recent introduction of AA methods and techniques and the inexperience of some of the AA farmers. The problems of transition from CA to AA farming (see section 2.2.4 for further details) and the associated economic, social and environmental effects, are likely to be better understood by the use of longitudinal data.

6.4 Implications for Future Research

Larger, long-term studies comparing AA, MA and CA are needed to increase the understanding of their economic feasibility, social impacts and environmental effects, particularly as the Thai government is presently hoping to promote AA on 20% of farmland by 2001 (NESDB, 1996). The collection of accurate labour cost information, yield differences, the importance of bartering and exchange economies, and the exact levels of direct and indirect subsidies and costs from organisations involved would help to provide a more accurate analysis. Future studies should also include levels of home consumption of household farm products, non-farm income, farm size and whole farm data compared to per rai data, as these factors were found to be important. Soil fertility data may help to explain the differences in farm size found. Further data concerning the length and problems of the transitional period of moving from CA to AA may help to limit the negative effects of reduced yields and lower income levels.

Comparisons of different AA approaches (for example organic, integrated and agroforestry) in different regions of the country would provide useful information to policy makers, extension officers and farmers. There is also a need for further research and development into the quantities of different artificial and alternative agricultural inputs applied and their effects on producers' and consumers' health and on the environment (for example, in terms of soil quality and soil erosion). Appliers of artificial agricultural inputs are often hired labour, and this group (which is usually more economically, socially and politically marginalised than the farmers who employ them) should not be ignored. Suggestions as to how AA and CA methods can be less damaging to the environment and to health, and whether nylon nets, sticky glue, and other innovative alternative agricultural techniques and inputs are efficient and appropriate for Thailand are required. The experiments of the farmers themselves should also be seen as an important resource in a dynamically changing situation.

Valuation of the costs, both market and non-market, of the environmental and health problems associated with the use of artificial agricultural chemicals would be valuable in helping to provide a more thorough assessment of CA techniques versus AA techniques. For example, values of medical expenses incurred, lost labour time, etc. could be included in the health costs.

Further research examining whether there are inappropriate applications of artificial agricultural inputs to AA land, and whether there are inaccurate labelling and certification claims and practices would be valuable in assessing the effectiveness of AA and fair trade labelling and certification in Thailand. Market research into the demand for AA products that are traded through fair trade would be likely to help farmers, traders and marketers to improve their planning, production and supply. The market research in

Thailand could build on the work of Nelson (1991), and international market research could also be carried out.

Research concerning the overall number and types of AA initiatives in Thailand, both on an organisational and farmer basis are possible directions for further research. This information could also be given an international context, and compared to AA in other Asian countries. This data could be viewed at both the individual and the community level to further increase understanding of the issues involved. The author's suspicion that AA farmers are more progressive, both individually and on a group level, could also be investigated.

Finally, further research into the trade-off and possible synergy between AA, fair trade and development that is human, appropriate and sustainable (objective (c), section 1.3) is needed. Unfortunately this area was only briefly covered within this research, and it needs to be addressed further in the future.

6.5 Concluding Statements

The promotion and practising of AA in Village Three in Pong Yang, San Pay Yang and San Lueng was found to be an economically viable alternative to CA and MA, on a whole farm basis, when non-farm income and household consumption were included. However non-farm income and average farm size were highest for AA farmers, and outside funding of the organisations involved with AA must also be considered.

AA was found to have beneficial impacts on farm biodiversity, as well as using fewer types of artificial agricultural inputs and more types of alternative products than MA and CA.

The majority of respondents indicated that the extension information, new skills, health, safety and working conditions of AA techniques are better than those of CA methods. Even so, it should be remembered that the health risks from the artificial agricultural chemicals associated with CA methods are relatively minor when compared to the other health risks in the area, which include AIDS and road accidents.

AA provides farmers with an opportunity to improve their economic, social and environmental situations. However, the number of farmers who practice AA are few. This anomaly may be partly explained by the changes that modernisation is bringing to

Village Three in Pong Yang, San Pay Yang and San Lueng. As farmers are increasingly bombarded with advertising for consumer products, their patterns of demand and consumption change. In order to be able to fulfil these changing wants and needs farmers require increasing levels of cash income. The temptations of high, short-term earnings from CA cash crops and contract farming remain. Farmers often do not have accurate information concerning the potential profits and risks associated with different crops and agricultural methods and so they are unable to make informed profit maximisation decisions.

The promotion of a move away from the market economy by some NGOs may prove to be unsuccessful and unrealistic in promoting AA to the majority of farmers if the farmers continue to increase their consumer demand, thereby requiring higher income levels. Modernisation and population growth are occurring rapidly in Thailand, whether AA will provide farmers with enough incentives and income remains to be seen.

The effect of the devaluation of the Thai baht, will also affect the choices that Thai farmers make. For example, imported artificial agricultural chemicals may become too expensive for farmers, and their local AA alternatives may become more appealing.

The issues involved in AA and fair trade in northern Thailand are complicated. Policy makers and extension workers must be careful to ensure that they provide accurate advice to help improve overall welfare levels, without placing farmers and consumers at greater levels of economic and social risk, whilst working towards environmental sustainability.

Bibliography

Adams, R. (1995) "Leading Edge Seminar" (Newcastle-upon-Tyne: University of Newcastle-upon-Tyne, 1995).

Akerlof, G. (1970) "The market for 'lemons': Qualitative uncertainty and the market mechanism", *Quarterly Journal of Economics* **89**: 488-500.

Anderson, V. (1991) Alternative Economic Indicators (London: Routledge, 1991).

Asian Development Bank (1991) Sustainable Agricultural Development Concepts, Issues And Strategies Agriculture Department Staff Paper No. 1 (Bangkok: Asian Development Bank, February 1991).

Bontuyan, P., S. Yaimuang, S. Oungsomwang & N. Ngamnittayapong (1996) Project Evaluation Report – Project for the Development of Alternative Agriculture Producers – Consumers Network in Upper Northern Thailand (1994-1996) (Chiang Mai, Thailand: Imboon, October 31 1996).

Bridge (1996-97) Bridge Producer Reviews 1996/97: Data Collection Form (England: Oxfam Trading Division, unpublished).

Bridgehead (1995-6) Bridgehead 1995-6 Gift Catalogue (Ottawa: Oxfam-Canada Bridgehead, 1995).

Brown, M. B. (1993) Fair Trade Reform and Realities in the International Trading System (London: Zed Books, 1993).

Chamarik, S. (1995) "Keynote Address: Strategies for Sustainable Agriculture in Rural Development" in: Strategies for Sustainable Agriculture and Rural Development Poungsomlee, A. eds. (Thailand: Faculty of Environment and Resource Studies, Mahidol University of Salaya, 1995) 1-6.

Chantalakhana, C. (1995) "Sustainable Agriculture: A Choice for Human Survival" in: Strategies for Sustainable Agriculture and Rural Development Poungsomlee, A. eds. (Thailand: Faculty of Environment and Resource Studies, Mahidol University of Salaya, 1995) 28-39.

Chilson, C. & D. Chandler (1997) An Alternative Trade Guidebook (an early draft) (Colorado: Weave A Real Piece, unpublished).

Chumchuan (1997) Personal communications with the director of the Imboon Center, Chiang Mai, between 23 August and 12 November 1997.

Connections (Fall 1996) "The Fair Trade Store" in *Connections* **21(2):** 6.

Conway, G. R. & E. B. Barbier (1990) After the Green Revolution Sustainable Agricultural Development (London: Earthscan Publications Ltd., 1990).

Council on Economic Priorities (1991) Shopping for a Better World (US: Ballantine Books, 1991).

Crane, D. (1980) A Dictionary of Canadian Economics (Edmonton: Hurtig Publishers, 1980).

De Colle, S. (1994) Globalisation and the Role of Transnational Corporations (TNCs): An Economic Rationale for Corporate Social Responsibility (United Nations Organisation for Research in Social Development, unpublished).

De, S. & P. Nabar (1991) "Economic Implications of Imperfect Quality Certification" *Economics Letter* **37**: 333-337.

Ekachai, S. (1994) Behind the Smile Voices of Thailand (Bangkok: The Post Publishing Co., Ltd., 1994).

Entine, J. (1995) "Caring capitalism?; Against Animal Testing; Business Focus", *STM* **21**: 20-27.

Ethical Consumer Research Association (quarterly) *Ethical Consumer* (Manchester, U. K.: Ethical Consumer Research Association Publishing Ltd., quarterly).

Fernandez, A. J. (1989) "Comments on Statistical Requirements for the Development of a Welfare index" in Redefining Wealth and Progress New Ways to Measure Economic, Social and Environmental Change, The Caracas Report on Alternative Development Indicators (New York: The Bootstrap Press, 1989) 80-85.

Food and Agriculture Organisation (1989) Sustainable Agriculture Production: Implications for International Agricultural Research (Rome, Italy: FAO Research and Technology Paper 4, 1989).

Foundation for the Development of Rural Education (FEDRA) (undated) Sustainable Agriculture (Chiang Mai: Wat Pa-Darapirom). Translated from Thai.

Foundation for the Development of Rural Education (FEDRA) (1997) Summary of the Alternative Agriculture Network Meeting, Chiang Mai (Chiang Mai: FEDRA, 25 February 1997, unpublished). Translated from Thai.

Freimann, J. (1995) "Environmental Information Systems and Eco-auditing" in Principles of Environmental and Resource Economics A Guide for Students and Decision-Makers H. Folmer, H. L. Gabel and H. Opschoor eds. (Aldershot, UK: Edward Elgar Publishing Company, 1995) 362-388.

Fukuoka, M. (1978) The One-straw Revolution: an Introduction to Natural Farming (Emmaus: Rodale Press, 1978).

Haener, M. (1997) Forest Certification (University of Alberta: term paper for Forest Economics 545, unpublished).

Hall, P. (1983) Growth and Development: An Economic Analysis (Oxford: Martin Robertson, 1983) 2-9.

Hess, I. (1996) SELFHELP Crafts of the World - The First 50 Years (Akron: Mennonite Central Committee, 1996).

Hirsch, P. (1996) Seeing Forests for Trees: Environment and Environmentalism in Thailand (Chiang Mai, Thailand: Silkworm Books, 1996).

Hopkins, M. & A. Straughan (1995) Defining Indicators To Assess Socially Responsible Enterprises (Geneva and London: MH Consulting Ltd., June 1995).

Hueting, R. (1990) "Correcting National Income for Environmental Losses Toward a Practical Solution" in Environmental Accounting for Sustainable Development Ahmad, Y. J., S. E. Serafy and E. Lutz eds. (Washington: The International Bank for Reconstruction and Development/The World Bank, 1989) 32-29.

Independent Monitoring Working Group (1996) Monitoring Corporate Codes of Conduct (London: Catholic Institute of International Relations and the New Economics Foundation, December, 1996).

Iyer, R. eds. (1987) "*Swadeshi* -Self-Reliance" in: The Moral and Political Writings of Mahatma Gandhi Vol. 3 (Oxford: Clarendon Press, 1987) 325-409.

Jeerawan (1997) Personal communications with the Head of Environmental Education and Population Growth at the YMCA, Chiang Mai, 3 October 1997.

Jungbluth, F. (1996) Crop Protection Policy in Thailand Economic and Political Factors Influencing Pesticide Use (Hanover: A Publication of the Pesticide Policy Project, Publication Series No. 5, December 1996).

Kiker, C. F. & F. E. Putz (1997) "Ecological Certification of Forest Products: Economic Challenges", *Ecological Economics* **20**: 37-51.

Krongkaew, M. (1993) "Poverty and Income Distribution" in: The Thai Economy in Transition eds. P. G. Warr (Hong Kong: Cambridge University Press, 1993).

Kulick, E. & D. Wilson (1996) Time for Thailand Profile of a New Success (Bangkok: White Lotus, 1996).

LWDP/WAYANG (1995) Weaving for Alternatives! (Thailand: Nutchas Publishing Co. Ltd., 1995).

Leatherman, P. (1996) International Federation for Alternative Trade (Akron: International Federation of Alternative Trade, 1996).

LeClair, R. (1997) Personal communication with the CUSO volunteer in the Chiang Mai provincial Plant Protection Section, 12 October 1997.

Levin, P. & V. Panyakul (1995) "Agriculture or Agri-business?" *Thai Development Newsletter* **27-28:** 104-108.

Lianchamroon, W. (1991) "Lessons From the Spread of the Brown Plant Hopper: Problems of the Green Revolution and Solutions for Thailand (Bangkok: 1991 People's Forum: Development as if People Mattered, 8-17 October 1991).

Lianjumrooh, W. (1996) Alternative Agriculture Certification in Thailand ACT (Bangkok: Alternative Agriculture Network, 1996). Translated from Thai.

Little, E. (1997) Personal communication with the Australian volunteer and Marketing Advisor for the Imboon Center, Chiang Mai, 31 October 1997.

Mae Rim District Agricultural Extension Office (1997) Mae Rim District Agricultural Extension Office Budget, 1997 (Chiang Mai, Thailand: Mae Rim District Agricultural Extension Office, 1997). Translated from Thai.

Mattoo, A. & H. V. Singh (1994) "Eco-Labeling: Policy Considerations" in *KYKLOS* 47(1): 53-65.

Nanta, P. (1995) "Plant Protection Towards Sustainable Agriculture" in: Strategies for Sustainable Agriculture and Rural Development Poungsomlee, A. eds. (Thailand: Faculty of Environment and Resource Studies, Mahidol University of Salaya, 1995) 59-65.

National Economic and Social Development Board (1996) The Eighth National Economic and Social Development Plan (1997-2001) (Bangkok: Office of the Prime Minister, 1996).

National Research Council (1989) "Economic Evaluation of Alternative Farming Systems" in: Alternative Agriculture Committee on the Role of Alternative Farming Methods in Modern Production Agriculture, Board on Agriculture, National Research Council (Washington, D.C.: National Academy Press, 1989) 195-244.

Nelson, J. (1991) "Marketing of Pesticide-Free Vegetables in Bangkok" (Bangkok: Asian Institute of Technology, Unpublished Masters thesis, 1991).

Niessen, S. A. (1996a) "Wood-Based Crafts and Agroforestry in Northern Thailand: A Human Ecological Perspective, Research Report # 1" (Edmonton: University of Alberta, November 1996).

Niessen, S. A. (1996b) "Craft Interview Questions" used by Niessen, S. A. (1996) in "Wood-Based Crafts and Agroforestry in Northern Thailand: A Human Ecological Perspective, Research Report # 1" (Edmonton: University of Alberta, unpublished).

Nidhiprabha, B. (1993) "Monetary Policy" in: The Thai Economy in Transition P.G. Warr eds. (Hong Kong: Cambridge University Press, 1993) 172-198.

Noparat, A. (1997) Personal communication with the Agricultural Extension District Office of Mae Rim District Agricultural Office, 29 October 1997.

Northnet Foundation (undated) Project for the Development of Alternative Agriculture Producers and Consumers Network in Upper Northern Thailand (Chiang Mai, Thailand: Northnet Foundation, undated)

Nozick, M. (1992) No Place Like Home: Building Sustainable Communities (Ottawa: Canadian Council on Social Development, 1992).

Organisation of Economic Co-operation and Development (1991) Environmental Labelling in OECD Countries (Paris: Organisation of Economic Co-operation and Development, 1991).

Office of Agricultural Economics, The Ministry of Agriculture and Co-operatives (1992) Agricultural Statistics of Thailand Crop Year 1991/92 (Bangkok, Thailand: Chuanpim, 1992).

Office of Agricultural Economics, The Ministry of Agriculture and Co-operatives (1997) Agricultural Statistics of Thailand Crop Year 1995/96 (Bangkok, Thailand: Chuanpim, 1997).

Panyakul, V. (1996) Alternative Agriculture Certification Thailand (ACT) Basic Standard (Bangkok: Green Net, 19 May 1996) 2.

Panyakul, V. (1995a) Alternative Marketing and Certification in Thailand: Building Alternative System (Bangkok: Green Net, 1995).

Panyakul, V. (1995b) "Linking Producers and Consumers Alternative Agriculture Network - Thailand" (Korea: The Second IFOAM-Asia Assembly, July 23 1995).

Panyakul, V. (1993) "Sustainable Agriculture in Thailand: Past and Present" (Hanno City, Japan: The First IFOAM Asian Conference, 19-22 August 1993).

Panyakul, V. (1992) 'Naew Kit Lae Quam Mai Khong Kasetakham Thang Lueak" (Conepts and Meaning of Alternative Agriculture) in: Kasetakhum Thang Lueak: Thang Rod Khong Kasetakham Thai (Alternative Agriculture: The Solution for Thai Agriculture) Lianchamroon & Witoon eds.(Bangkok: Alternative Thai Network, 1992).

Pearce, D., A. Markandya, & E. B. Barbier (1989) Blueprint for a Green Economy (London: Earthscan, 1989).

Phongpaichit, P. & Baker, C. (1997) Thailand Economy and Politics (New York: Oxford University Press/ASIA Books, 1997).

Prinz, K. (1997) Personal communications with the Agriculture and Development Officer of the McKean Rehabilitation Center, Chaing Mai, 7 October 1997.

Prompunya, T. (1997) Personal communications with the FEDRA extension officer for San Pay Yang and San Lueng at various times between 9 August 1997 and 20 November 1997.

Pruzan, P. & O. Thyssen (1994) "The Renaissance of Ethics and the Ethical Accounting Statement" *Educational Technology* Jan 1994: 23-28.

Puntasen, A. (1996) "The Tambon Council and Communtiy Forest Management" in: Seeing Forests for Trees Environment and Environmentalism in Thailand P. Hirsch eds. (Chiang Mai, Thailand: Silkworm Books, 1996) 72-88.

Puttha, K. (1997) "Summary of the Alternative Agriculture Network Meeting" (Chiang Mai: Foundation for the Development of Rural Education, 25 February 1997, unpublished). Translated from Thai.

Ransom, D. (1994) "New Deal Coffee Producers Get Organised in Peru" *New Internationalist* (December 1994) **262**: 31.

Rola, C. A. & P. L. Pingali (1993) Pesticides, Rice Productivity and Farmers' Health an Economic Assessment (IRRI, World Resources Institute, 1993).

Rosenkranz, J. (1997) Personal communication with the German volunteer and AA Extension volunteer of the Northnet Foundation, 31 October 1997.

Rotherham, T. (1997) "The International Background to Forest Certification: Economic Aspects of the Environment Approach" (Kananaskis Village, Canada: Presentation at the Forest Certification and Socioeconomic Indicators of Sustainability Workshop, February 20-22 1997).

Sahasakul, C. (1993) "Fiscal Policy" in: The Thai Economy in Transition P. G. Warr eds. (Hong Kong: Cambridge University Press, 1993) 199-225.

Salmon, S. (1997) Personal communication with the director of Thaicraft, Bangkok on 31 July 1997.

Santasombat, Y. (1995) "Community-Based Natural Resource Management and Rural Development in Thailand" in: Strategies for Sustainable Agriculture and Rural Development A. Poungsomlee eds. (Thailand: The Faculty of Environmental and Resource Studies, Mahidol University of Salaya, 1995) 12-27.

Schumacher, E. F. (1973) Small is Beautiful: Economics as if People Mattered (New York: Harper & Row, 1973).

Selfhelp (undated) What is SELFHELP Crafts? (New Hamburg: Selfhelp Crafts of the World, A program of Mennonite Central Committee, undated).

Selfhelp (1990) Selfhelp Crafts Purchasing Guidelines (New Hamburg: Selfhelp Crafts of the World, A program of Mennonite Central Committee, August 1990).

Setboonsarng, S. (1995) "Economic Issues in Alternative Agriculture" (Pechaburi, Thailand: Asian Environmental Research and Development Networking on Sustainable Agriculture, 28-30 April 1995).

Shiva, V. (1988) Staying Alive: Women, Ecology and Development (London: Zed Books Ltd., 1988).

Streeten, P. P. (1995) Thinking About Development (Cambridge: Cambridge University Press, 1995).

Supawan, D. (1997) Personal communication with Technical Support Officer of Rural Reconstruction Alumni and Friends Association (RRAFA), Bangkok, 10 October 1997.

Sylvester, R. (1992) "Of Mickey Mouse and Hunger" *New Internationalist* (February 1992) **228**: 16-17.

Tangtrongbenjasil, M. & S. Tanakilkosert (1992) "Community Study" (Faculty of Social Welfare, Thammasat University, Bangkok: Unpublished paper for Socio203). Translated from Thai.

Tantemsapya, N. (1996) "Sustainable Agriculture in Thailand" in: Seeing Forests for Trees Environment and Environmentalism in Thailand P. Hirsch eds. (Chiang Mai, Thailand: Silkworm Books, 1996) 268-286.

Terdudomtham, T. (1998) "The Bubble Finally Burst" in: The Bangkok Post Year End Summary (15 January, 1998) 6-7.

Terdudomtham, T. (1997) "Analysts Taken by Surprise" in: The Bangkok Post Year End Summary 9-11.

Thatcher, V. S. & A. McQueen (1980) The New Webster Encyclopaedic Dictionary of the English Language (New York: Avenel Books, 1980).

The Caracas Report on Alternative Development Indicators (1989) Redefining Wealth and Progress New Ways to Measure Economic, Social and Environmental Change (New York: The Bootstrap Press, 1989).

The Economist (1997a) "Thailand Gets the Bill" *The Economist* **344(8029)**: 31-32.

The Economist (1997b) "Fire sale, Thai-style" *The Economist* **345(8042)**: 42.

The Economist (1997c) "What the Doctor Ordered" *The Economist* **344(8029)**: 32-33.

Third World Information Network (1994) Fair Trade - A Rough Guide for Business (London: Third World Information Network, 1994).

Thompson, B. & P. Freundlich (1994) "Alternative Trade" in Alternative/Fair Trade, Report on Conference held in Winnipeg May 1994 (CUSO Global Grassroots, 1994) 1.

Thowakulphanich, W. (1996) "Organic Vegetables for a Well-Balanced Life (Mr. Phanomkorn Namjant)" in: Experience from Lanna (Bangkok: Northern Region Alternative Agriculture Network, February 1996). Translated from Thai: 107-121.

Transfair International (1995) Transfair's Cup of Tea! Report on the Activities of Transfair International During 1995 (Germany: Transfair International, 1995).

Turkelboom, F. & K. Van Keer (1996) Land Management Research for Highland Agriculture in Thailand Research Highlights of the Soil Fertility Conservation Project (1989-1995) (Maejo University, Thailand - KULeuven, Belgium: Soil Fertility Conservation Project, 1995).

United Nations Conference on Environment and Development (1993) Agenda 21, Programme of Action for Sustainable Development: Rio Declaration on Environment and Development (New York: United Nations Department of Public Information, 1993).

United Nations Development Programme (1995) Human Development Reports 1995 (New York: Oxford University Press, 1995).

United Nations Development Programme (1997) Human Development Reports 1997 (New York: Oxford University Press, 1997).

Veeman, T. (1991) "Sustainable Agriculture: An Economist's Reaction" *Canadian Journal of Agricultural Economics* **39:** 587-590.

Waring, M. (1988) If Women Counted: A New Feminist Economics (San Francisco: HarperSanFrancisco, 1988).

Warr, P.G. (1993) The Thai Economy in Transition (Hong Kong: Cambridge University Press, 1993).

Wasi, P. (1994) "Foreword" in Behind the Smile: Voices of Thailand S. Ekachai (Bangkok, Thailand: The Post Publishing Co. Ltd., 1994) 11-13.

Weingsang, A. (1996) "Economic Viability of Alternative Rice Production System in the Rainfed Lowland of Northeast Thailand" (Chiang Mai University, Thailand: Unpublished Masters thesis, April 1996).

Wytinck, S. (1997) "Water Management in Northern Thailand: A Case Study of the Mae Taeng Irrigation Project" (University of Alberta, Canada: Unpublished Masters thesis, Spring 1997).

World Commission on Environment and Development (1987) Our Common Future, (Oxford: Oxford University Press, 1987).

Yaquin, A. (1996) "Tea Leaves Spell Good Fortune" *Christian Aid News* **90** (The Northcliffe Press, February/March 1996) 8.

Zadek, S. (1994) "Trading Ethics: Auditing the Market" *Journal of Economic Issues* **28(2)**: 631-645.

Zadek, S. & C. Haas (1995) "Dangerous Trading Trade and Growth Pose a Threat to the Environment Unless Care is Taken" in: New Economy (London: The Dryden Press, 1995).

Zadek, S. & P. Tiffen (1996) "Can Fair Trade Take on the Mainstream?" *New Economics* (Summer 1996) 6-9.

APPENDICES

Appendix 1: The Questionnaires

1. ALTERNATIVE AGRICULTURE (AA) FARMER QUESTONNAIRE

a. Producer Group:_______ b. Interview #:_________ c. Interviewer:_________ d. Date:________
e. Interviewees name:____
f. Interviewees address:____

1. Gender: ____________Male _______Female

2. Age:_________

3. Martial status:

Single	Married	Widowed	Divorced	Other (specify)

4. Education level:

not able to read	primary school (P4)	primary school (P6)	secondary school (M3)	high school (M6)	college/ technical training	Bachelor's Degree	Masters/ PhD

5. Household size at the time of interview (including interviewee)____________________

6. Number of household members who have migrated away from the village for employment or schooling_______

7. Household Farmland:

Farm		Land use		Tenure structure			Water Availability	
Plot	Area (rai)	Wet Season	Dry Season	Owned	Rented (total cost)	Other specify	Irrigated (Y/N)	Months of insufficient water
1								
2								
3								
4								
5								

8. Crops grown by the household (crop year 1 May 1995 to 30 April 1996):

	Vegetable	Fruit	Rice	Soybean	Flowers	Others specify
number of kinds grown						
total output (kg)						
Approximate home consumption - baht/year						
gross income per annum						
total costs* per annum						

(* excluding labour)
List of main crops grown:____

9. Livestock reared by the household between 1 May 1995 and 30 April 1996:

	Chickens	Ducks	Water buffalo	Pigs	Cattle	Fish*	Other specify
number reared							
Approximate home consumption - baht/year							
gross income/annum							
total costs** per annum							

(* fish reared are recorded by size of fish pond rather than by number reared)

(** excluding labour)

10. The names and amounts (in either litres or kilograms - specify) of the following inputs (chemical and/or natural) which are applied to the households' farmland:

	Name	Amount	Crops applied	Name	Amount	Crops applied
Fertiliser	1)			2)		
Natural fertilisers*	1)			2)		
Insecticides	1)			2)		
	3)			4)		
Herbicides	1)			2)		
	3)			4)		
Fungicides	1)			2)		
Molluscides	1)			2)		
Rodenticides	1)			2)		
Other (specify)	1)			2)		

(* this includes manure, compost, etc.)

11. Which of the following do you use for agricultural work?

	Own	Hire	Crops worked
Hand-held tractor			
4-wheel tractor			
Livestock			
Other (specify)			

12. How many members of your family (including yourself) work full-time on your farm?_____

13. How many members of your family (including yourself) work part-time and/or in a seasonal capacity on your farm?____

14. How many persondays of hired labour and exchange labour work on your farm per year?

Hired Labour (persondays)	Exchange labour (persondays)

15. Average wages paid to hired labour:

Average wage men - (baht or income-in-kind per day)	Average wage women - (baht or income-in kind per day)	Don't know

16. Who applies the fertiliser and chemicals on your farm?

	Male household members	Female household members	Male hired/ exchange labourers	Female hired/ exchange labourers	Other - specify
Fertiliser					
Chemicals					

17. Is labour availability ever a problem?

Yes	No	Don't know

18. What percentage of your agricultural products do you sell to the following, or consume within the household:

	H/H Cons **	Imboon	FEDRA	Merchant	Co-op	Processor	Contractor	Direct to consumer	Other specify	Same Prices Y/N*
Vegetable										
Fruit										
Rice										
Soybeans										
Flowers										
Other crops										
Chickens										
Ducks										
Buffalo										
Pigs										
Cattle										
Fish										
Other livestock										

* If the same prices are received for the same products from all buyers, continue to 20.

** Household consumption.

19. If your prices differ, who usually pays the highest price? (indicate below with a 'H')
who usually pays the lowest price? (indicate in the table below using a 'L')

	Imboon	FEDRA	Merchant	Co-op	Processor	Contractor	Direct to consumer	Other
Vegetable								
Fruit								
Rice								
Soybeans								
Flowers								
Other crops								
Chickens								
Ducks								
Buffalo								
Pigs								
Cattle								
Fish								
Other livestock								

20. Household processing:

	Product 1	Product 2	Product 3
What agricultural products are processed			
How are they processed			
What is the net profit?			

21. Household consumption and household income from forest products (baht/year)

Household consumption	Household income

22. Non-farm sources of household income (baht/year) and income-in-kind (estimated baht/year):

Crafts	Wages	Salary	Self-employment	Trading	Other (specify)

23. Which of the following does your household own, and what do you estimate their approximate value (baht) to be?

	Hand-held Tractor	4-wheel Tractor	Water pump	TV	Refrigerator	Motor -bike	Pick-up	Car
# owned								
Value								

24. Household debt (baht):

Source	Amount (baht)	Interest (percentage/year)
Bank		
Co-operative		
FEDRA		
Neighbour		
Relatives		
Other (specify)		

25. Does your ... (refer to chart) income level fluctuate throughout the year, and if so is it a problem?

	Yes	No	Don't know	Problem	Not a problem	Don't know
Agricultural						
Non-agricultural						

26. What effect has the change to AA had on your agricultural income fluctuations?

Positive	Negative	Unchanged	Don't know

27. How long have you practised AA this time? _______________

Have you ever practised AA before and then stopped?		If Yes, why did you stop?
Yes	No	1.
		2.

28. Why did you change from CA to AA?

Health reasons	Environmental reasons	Economic reasons	Social reasons	Other reasons (specify)

29. How ... (refer to chart) changed since you became involved with a AA?

	Better	Worse	Same	Don't know
have your working conditions				
has your health and safety				

30. Have you noticed any changes in the ... (refer to chart) of wildlife within your village boundary?

	Same	Increase	Decrease	Don't know
(1) Since the introduction of agricultural chemicals -Total Amount				
-Variety				
(2) Since the introduction of AA methods - Total Amount				
-Variety				

31. Do you think your production methods are sustainable?

Yes	No	Don't know

32. Do you personally know anyone who has become ill as a result of using agricultural chemicals?

Yes	No	Don't know

33. Where did you learn your AA techniques?

Self-taught	Government Extension worker/s	FEDRA Extension worker/s	Imboon Extension worker/s	Other farmers	Other - specify

34. Have you gained new skills and knowledge by being involved with AA, and if so what?

Yes/ No	Farming	Marketing	Management	Quality Control	Networking	Field visits	Other - specify

35. Do you label, package or verbally tell consumers that your products have been produced using AA methods? If so, which labels or packaging do you use?

	Do not label	Imboon label	FEDRA label	Own label	Tell consumer verbally	Other - specify
Vegetable						
Fruit						
Rice						
Soybeans						
Flowers						
Other crops						
Chickens						
Ducks						
Buffalo						
Pigs						
Cattle						
Fish						
Other livestock						

36. Do you gain personal freedom from your farming methods?

Yes	No	Don't know

37. What problems are associated with AA?
1____________________
2____________________

38. What are the economic problems in your village?
1____________________
2____________________

39. What are the environmental problems in your village?
1____________________
2____________________

40. What are the social problems in your village?
1____________________
2____________________

41. Do you combine your agricultural work with other activities, such as child minding, and is it important to you?

Yes	No	Don't know	Important	Unimportant	Don't know

42. Who decides which crops will be grown, and which livestock will be raised?

Farmer	Buyer/s	Other (please specify)

43. How do you feel about the future of AA?

Optimistic	Pessimistic	Stationary	Don't know

44. What impacts, other than those mentioned above, has AA had on your...?

... life
1____
2____

... household
1____
2____

... village
1____
2____

2. CONVENTIONAL AGRICULTURE (CA) - FARMER QUESTIONNAIRE

a. Producer Group:________ b. Interview #:___ c. Interviewer:___ d. Date:________
e. Interviewees name:____
f. Interviewees address:____

1. Gender: _____________Male _______Female

2. Age:_________

3. Martial status:

Single	Married	Widowed	Divorced	Other (specify)

4. Education level:

not able to read	primary school (P4)	primary school (P6)	secondary school (M3)	high school (M6)	College/ technical training	Bachelor's Degree	Masters /PhD

5. Household size at the time of interview (including interviewee)______________________

6. Number of household members who have migrated away from the village for employment or schooling_______

7. Household Farmland:

Farm		Land Use		Tenure Structure			Water Availability	
Plot	Area (rai)	Wet Season	Dry Season	Owned	Rented (total cost)	Other specify	Irrigated (Y/N)	Months of insufficient water
1								
2								
3								
4								
5								

8. Crops grown by the household (crop year 1 May 1995 to 30 April 1996):

	Vegetable	Fruit	Rice	Soybean	Flowers	Others specify
number of kinds grown						
total output (kg)						
approximate home consumption - baht/year						
gross income per annum						
total costs* per annum						

(* excluding labour)
List of main crops grown:____

9. Livestock reared by the household between 1 May 1995 and 30 April 1996:

	Chickens	Ducks	Water buffalo	Pigs	Cattle	Fish*	Other specify
number reared							
Approximate home consumption - baht/year							
gross income/annum							
total costs** per annum							

(* fish reared are recorded by size of fish pond rather than by number reared)

(** excluding labour)

10. The names and amounts (in either litres or kilograms - specify) of the following inputs (chemical and/or natural) which are applied to the households' farmland:

	Name	Amount	Crops applied	Name	Amount	Crops applied
Fertiliser	1)			2)		
Natural fertilisers*	1)			2)		
Insecticides	1)			2)		
	3)			4)		
Herbicides	1)			2)		
	3)			4)		
Fungicides	1)			2)		
Molluscides	1)			2)		
Rodenticides	1)			2)		
Other (specify)	1)			2)		

(* this includes manure, compost, etc.)

11. Which of the following do you use for agricultural work?

	Own	Hire	Crops worked
Hand-held tractor			
4-wheel tractor			
Livestock			
Other (specify)			

12. How many members of your family (including yourself) work full-time on your farm?_____

13. How many members of your family (including yourself) work part-time and/or in a seasonal capacity on your farm?_____

14. How many persondays of hired labour and exchange labour work on your farm in a year?

Hired Labour (persondays)	Exchange labour (persondays)

15. Average wages paid to hired labour:

Average wage men - (baht or income-in-kind per day)	Average wage women - (baht or income-in kind per day)	Don't know

16. Who applies the fertiliser and chemicals on your farm?

	Male H/H members	Female H/H members	Male hired/ exchange labourers	Female hired/ exchange labourers	Other - specify
Fertiliser					
Chemicals					

17. Is labour availability ever a problem?

Yes	No	Don't know

18. What percentage of your agricultural products do you sell to the following, or consume within the household:

	H/H Consume	Merchant	Co-op	Processor	Contractor	Direct to consumer	Other specify	Same Prices (Y/N)*
Vegetable								
Fruit								
Rice								
Soybeans								
Flowers								
Other crops								
Chickens								
Ducks								
Buffalo								
Pigs								
Cattle								
Fish								
Other livestock								

* If the same prices are received for the same products from all buyers, continue to 20.

19. If your prices differ, who usually pays the highest price? (indicate below with a 'H') who usually pays the lowest price? (indicate in the table below using a 'L')

	Merchant	Co-op	Processor	Contractor	Direct to consumer	Other
Vegetable						
Fruit						
Rice						
Soybeans						
Flowers						
Other crops						
Chickens						
Ducks						
Buffalo						
Pigs						
Cattle						
Fish						
Other livestock						

20. Household processing:

	Product 1	Product 2	Product 3
What agricultural products are processed			
How are they processed			
What is the net profit?			

21. Household consumption and household income from forest products (baht/year)

Household consumption	Household income

22. Non-farm sources of household income (baht/year) and income-in-kind (estimated baht/year):

Crafts	Wages	Salary	Self-employment	Trading	Other (specify)

23. Which of the following does your household own, and what do you estimate their approximate value (baht) to be?

	Hand-held Tractor	4-wheel Tractor	Water pump	TV	Refrigerator	Motorbike	Pick -up	Car
# owned								
Value								

24. Household debt (baht):

Source	Amount (baht)	Interest (percentage/year)
Bank		
Co-operative		
FEDRA		
Neighbour		
Relatives		
Other (specify)		

25. Does your ... (refer to chart) income level fluctuate throughout the year, and if so is it a problem?

	Yes	No	Don't know	Problem	Not a problem	Don't know
Agricultural						
Non-agricultural						

26.1. How long have you practised CA? ____________

26.2. Do you know about AA? Yes__ No_____

26.3. If you know about AA why do you not practice it? 1____________________
2____________________

27. Have you noticed any changes in the ... (refer to chart) of wildlife within your village boundary?

	Same	Increase	Decrease	Don't know
(1) Since the introduction of agricultural chemicals -Total Amount				
-Variety				

28. Do you think your production methods are sustainable?

Yes	No	Don't know

29. Do you personally know anyone who has become ill as a result of using agricultural chemicals?

Yes	No	Don't know

30. Where did you learn your CA techniques?

Self-taught	Government Extension worker/s	NGO Extension worker/s	Other farmers	Other (specify)

31. What problems are associated with CA?
1____________________
2____________________

32. What are the economic problems in your village?
1____________________
2____________________

33. What are the environmental problems in your village?
1____________________
2____________________

34. What are the social problems in your village?
1____________________
2____________________

35. Do you gain personal freedom from your farming methods?

Yes	No	Don't know

36. Do you combine your agricultural work with other activities, such as child minding, and is it important to you?

Yes	No	Don't know	Important	Unimportant	Don't know

37. Who decides which crops will be grown, and which livestock will be raised?

Farmer	Buyer/s	Other (please specify)

38. How do you feel about the future of CA?

Optimistic	Pessimistic	Stationary	Don't know

39 What impacts, other than those mentioned above, has CA had on your...?

... life 1______________________________
2______________________________

... household 1______________________________
2______________________________

... village 1______________________________
2______________________________

3. MIXED AGRICULTURE (MA) FARMER QUESTIONNAIRE

(where AA techniques and CA techniques are practised on the same farm)

a. Producer Group:_______ b. Interview #:___ c. Interviewer:___ d. Date:________
e. Interviewees name:____
f. Interviewees address:____

1. Gender: _____________Male _______Female

2. Age:_________

3. Martial status:

Single	Married	Widowed	Divorced	Other (specify)

4. Education level:

not able to read	primary school (P4)	primary school (P6)	secondary school (M3)	high school (M6)	college/ technical training	Bachelor's Degree	Masters/ PhD

5. Household size at the time of interview (including interviewee)______________________

6. Number of household members who have migrated away from the village for employment or schooling_______

7. Household Farmland:

	Agriculture		Land Use		Tenurial structure			Water Availability	
Plot	Area (rai)	CA/ AA *	Wet Season	Dry Season	Owned	Rented (total cost)	Other specify	Irrigated (Y/N)	Months of insufficient water
1									
2									
3									
4									
5									

(*CA = conventional agriculture, AA = alternative agriculture).

8a. Crops grown by the household using AA techniques (crop year 1 May 1995 to 30 April 1996):

	Vegetable	Fruit	Rice	Soybean	Flowers	Others specify
number of kinds grown						
total output (kg)						
approximate home consumption - baht/year						
gross income per annum						
total costs* per annum						

(* excluding labour)

List of main crops grown:____

8b. Crops grown by the household using CA techniques (crop year 1 May 1995 to 30 April 1996):

	Vegetable	Fruit	Rice	Soybean	Flowers	Others specify
number of kinds grown						
total output (kg)						
approximate home consumption - baht/year						
gross income per annum						
total costs* per annum						

(* excluding labour)

List of main crops grown:____

9a. Livestock reared by the household using AA techniques, between 1 May 1995 and 30 April 1996:

	Chickens	Ducks	Water buffalo	Pigs	Cattle	Fish*	Other specify
number reared							
approximate home consumption - baht/year							
gross income/annum							
total costs** per annum							

(* fish reared are recorded by size of fish pond rather than by number reared)

(** excluding labour)

9b. Livestock reared by the household using CA techniques, between 1 May 1995 and 30 April 1996:

	Chickens	Ducks	Water buffalo	Pigs	Cattle	Fish*	Other specify
number reared							
approximate home consumption - baht/year							
gross income/annum							
total costs** per annum							

(* fish reared are recorded by size of fish pond rather than by number reared)

(** excluding labour)

10a. The names and amounts (in either litres or kilograms - specify) of the following inputs (chemical and/or natural) which are applied to the households' AA farmland:

	Name	Amount	Crops applied	Name	Amount	Crops applied
Fertiliser	1)			2)		
Natural fertilisers*	1)			2)		
Insecticides	1)			2)		
	3)			4)		
Herbicides	1)			2)		
	3)			4)		
Fungicides	1)			2)		
Molluscides	1)			2)		
Rodenticides	1)			2)		
Other (specify)	1)			2)		

(* this includes manure, compost, etc.)

10b. The names and amounts (in either litres or kilograms - specify) of the following inputs (chemical and/or natural) which are applied to the households' conventional agricultural farmland:

	Name	Amount	Crops applied	Name	Amount	Crops applied
Fertiliser	1)			2)		
Natural fertilisers*	1)			2)		
Insecticides	1)			2)		
	3)			4)		
Herbicides	1)			2)		
	3)			4)		
Fungicides	1)			2)		
Molluscides	1)			2)		
Rodenticides	1)			2)		
Other (specify)	1)			2)		

(* this includes manure, compost, etc.)

11a. Which of the following do you use for AA work?

	Own	Hire	Crops worked
Hand-held tractor			
4-wheel tractor			
Livestock			
Other (specify)			

11b. Which of the following do you use for CA work?

	Own	Hire	Crops worked
Hand-held tractor			
4-wheel tractor			
Livestock			
Other (specify)			

12. How many members of your family (including yourself) work full-time on your farm?_____

13. How many members of your family (including yourself) work part-time and/or in a seasonal capacity on your farm?_______________

14. How many persondays of hired labour and exchange labour work on your farm in a year?

AA (persondays)		CA (persondays)	
Hired Labour	Exchange Labour	Hired Labour	Exchange Labour

15. Average wages paid to hired labour:

Average wage men - (baht or income-in-kind per day)	Average wage women - (baht or income-in kind per day)	Don't know

16. Who applies the fertiliser and chemicals on your farm?

	Male H/H members	Female H/H members	Male hired/ exchange labourers	Female hired/ exchange labourers	Other - specify
Fertiliser					
Chemicals					

17. Is labour availability ever a problem?

Yes	No	Don't know

18a. What percentage of your AA products do you sell to the following, or consume within the household:

	House-hold Consume	Imboon	FEDRA	Merchant	Co -op	Processor	Contractor	Direct to consumer	Other specify	Same Price (Y/N)*
Vegetable										
Fruit										
Rice										
Soybeans										
Flowers										
Other crops										
Chickens										
Ducks										
Buffalo										
Pigs										
Cattle										
Fish										
Other livestock										

* If the same prices are received for the same products from all buyers, continue to 20.

18b. If your AA prices differ, who usually pays the highest price? (indicate below with a 'H'), and who usually pays the lowest price? (indicate in the table below using a 'L')

	Imboon	FEDRA	Merchant	Co-op	Processor	Contractor	Direct to consumer	Other specify
Vegetable								
Fruit								
Rice								
Soybeans								
Flowers								
Other crops								
Chickens								
Ducks								
Buffalo								
Pigs								
Cattle								
Fish								
Other livestock								

19a. What percentage of your CA products do you sell to the following, or consume within the household:

	House-hold Consume	Merchant	Co-op	Processor	Contractor	Direct to consumer	Other specify	Same Prices (Y/N)*
Vegetable								
Fruit								
Rice								
Soybeans								
Flowers								
Other crops								
Chickens								
Ducks								
Buffalo								
Pigs								
Cattle								
Fish								
Other livestock								

* If the same prices are received for the same products from all buyers, continue to 20.

19b. If your CA prices differ, who usually pays the highest price? (indicate below with a 'H'), and who usually pays the lowest price? (indicate in the table below using a 'L')

	Merchant	Co-op	Processor	Contractor	Direct to consumer	Other specify
Vegetable						
Fruit						
Rice						
Soybeans						
Flowers						
Other crops						
Chickens						
Ducks						
Buffalo						
Pigs						
Cattle						
Fish						
Other livestock						

20a. AA household processing:

	Product 1	Product 2	Product 3
What agricultural products are processed			
How are they processed			
What is the net profit?			

20b. CA household processing:

	Product 1	Product 2	Product 3
What agricultural products are processed			
How are they processed			
What is the net profit?			

21. Household consumption and household income from forest products (baht/year)

Household consumption	Household income

22. Non-farm sources of household income (baht/year) and income-in-kind (estimated baht/year):

Crafts	Wages	Salary	Self-employment	Trading	Other (specify)

23. Which of the following does your household own, and what do you estimate their approximate value (baht) to be?

	Hand-held Tractor	4-wheel Tractor	Water pump	TV	Refrigerator	Motorbike	Pick -up	Car
# owned								
Value								

24. Household debt (baht):

Source	Amount (baht)	Interest (percentage/year)
Bank		
Co-operative		
FEDRA		
Neighbour		
Relatives		
Other (specify)		

25. Does your ... (refer to chart) income level fluctuate throughout the year, and if so is it a problem?

	Yes	No	Don't know	Problem	Not a problem	Don't know
AA						
CA						
Non-agricultural						

26. What effect has the change to AA had on your AA income fluctuations?

Positive	Negative	Unchanged	Don't know

27. How long have you practised AA this time? _______________

Have you ever practised AA before and then stopped?		If Yes, why did you stop?
Yes	No	1.
		2.

28.1. Why did you change part of your farm from CA to AA?

Health reasons	Environmental reasons	Economic reasons	Social reasons	Other reasons (specify)

28.2. Why do you not practice AA techniques on your whole farm?

1____

2____

29. How ... (refer to chart) changed since you became involved with AA?

	Better	Worse	Same	Don't know
have your working conditions				
has your health and safety				

30. Have you noticed any changes in the ... (refer to chart) of wildlife within your village boundary?

	Same	Increase	Decrease	Don't know
(1) Since the introduction of agricultural chemicals -Total Amount				
-Variety				
(2) Since the introduction of AA methods -Total Amount				
-Variety				

31. Do you think your ... (refer to chart) production methods are sustainable?

	Yes	No	Don't know
AA			
CA			

32. Do you personally know anyone who has become ill as a result of using agricultural chemicals?

Yes	No	Don't know

33. Where did you learn your ... (refer to chart) farming methods?

	Self-taught	Government Extension worker/s	FEDRA Extension worker/s	Imboon Extension worker/s	Other farmers	Other - specify
AA						
CA						

34. Have you gained new skills and knowledge by being involved with alternative agriculture, and if so what?

Yes/ No	Farming	Marketing	Management	Quality Control	Networking	Field visits	Other - specify

35. Do you label, package or verbally tell consumers that your products have been produced using AA methods? If so, which labels or packaging do you use?

	Do not label	Imboon label	FEDRA label	Own label	Tell consumer verbally	Other specify
Vegetable						
Fruit						
Rice						
Soybeans						
Flowers						
Other crops						
Chickens						
Ducks						
Buffalo						
Pigs						
Cattle						
Fish						
Other livestock						

36. Do you gain personal freedom from your ... (refer to chart) farming method?

Farming Method	Yes	No	Don't know
AA			
CA			

37a. What problems are associated with AA?
1________________
2________________

37b. What problems are associated with CA?
1________________
2________________

38. What are the economic problems in your village?
1________________
2________________

39. What are the environmental problems in your village?
1________________
2________________

40. What are the social problems in your village?
1________________
2________________

41. Do you combine your agricultural work with other activities, such as child minding, and is it important to you?

Yes	No	Don't know	Important	Unimportant	Don't know

42. Who decides which crops will be grown, and which livestock will be raised using ... (refer to chart) techniques?

	Farmer	Buyer/s	Other (please specify)
AA			
CA			

43. How do you feel about the future of ... (refer to chart)?

	Optimistic	Pessimistic	Stationary	Don't know
AA				
CA				

44a. What impacts, other than those mentioned above, has AA had on your...?

... life 1______________________________
2______________________________

... household 1______________________________
2______________________________

... village 1______________________________
2______________________________

44b. What impacts, other than those mentioned above, has CA had on your...?

... life 1______________________________
2______________________________

... household 1______________________________
2______________________________

... village 1______________________________
2______________________________

Appendix 2: List of Resource Persons
(* = Thai translator required.)

Mr. Chumchuan
158 Muban **Imboon**
Muang Samut Road
Tambol Changmoi
Amphur Muang, Chiang Mai 50300, Thailand
Tel/fax: 66-53-872731

Mr. Raymond LeClair
Plant Protection Section
Agriculture Extension Department
Chiang Mai, Thailand
Tel: 66-53-212118

Mr. Eric Little
Marketing Advisor
158 Muban **Imboon**
Muang Samut Road
Tambol Changmoi
Amphur Muang, Chiang Mai 50300, Thailand
Tel/fax: 66-53-872731

Mr. Vitoon R. Panyakul
Green Net
1108 Soi Sri-on-rod
Sutheesarn Road
Huay Kwang, Bangkok 10320, Thailand
Tel/fax: 66-2-2768023, 6936622

Mr. Klaus Prinz
Agriculture and Development
McKean Rehabilitation Center
P.O. Box 53
Chiang Mai 50000, Thailand
Tel: 66-53-277049, 817170/1 fax: 66-53-282495
e-mail: mckeanrc@chmai.loxinfo.co.th

Mr. Thongparn Prompunya*
The Foundation and Development of Rural Areas **(FEDRA)**
Wat Pa-Darapirom
Darabhirom
Mae Rim District, Chiang Mai, Thailand
Tel: 66-53-297015, 862723

Ms. Prapasri Naparat
Food Project Co-ordinator, Y. Development Co-operation Co. Ltd. **(YMCA)**
11 Sermsuk Road, Soi Mengrairasmi, Chiang Mai 50000, Thailand
Tel: 66-53-221819/20 fax: 66-53-215523

Mr. Anusorn Noparat*
District Officer, **Office of Agricultural Extension**
Mae Rim
Chiang Mai, Thailand
Tel: 297323

Mr. Prasert
Director of Inter Mountain Peoples Education and Culture in Thailand Association **(IMPECT)**
252 Moo 2, Sansainoi Sub-district
Sansai, Chiang Mai, 50210, Thailand
Tel. 66-53-492-544 / 66-53-398-591

Dr. Mark A. Ritchie
Director / Assistant Professor
Development Studies in Thailand
Antioch Education Abroad, Antioch College
P. O. Box 246, Chiang Mai University
Chiang Mai 50202, Thailand
Tel / fax: 66-53-212410
e-mail: markr@pobox.com

Mr. Joerg Rosenkranz
Alternative Agriculture Extension Worker
158 Muban **Imboon**
Muang Samut Road
Tambol Changmoi
Amphur Muang, Chiang Mai 50300, Thailand
Tel/fax: 66-53-872731

Mr. Steve Salmon
The **ThaiCraft** Association
78 Sukhumvit Soi 61
Bangkok 10110, Thailand
Tel/fax: 66-2-3916018, 714-1649

Ms. Darunee Supawan
Alternative Agriculture Network, c/o RRAFA
67 Soi Thonglor 3, Sukhumvit 55
Phrakhanong, Bangkok, Thailand
Tel: 66-2-3911771, 71264421, fax: 66-2-3911771